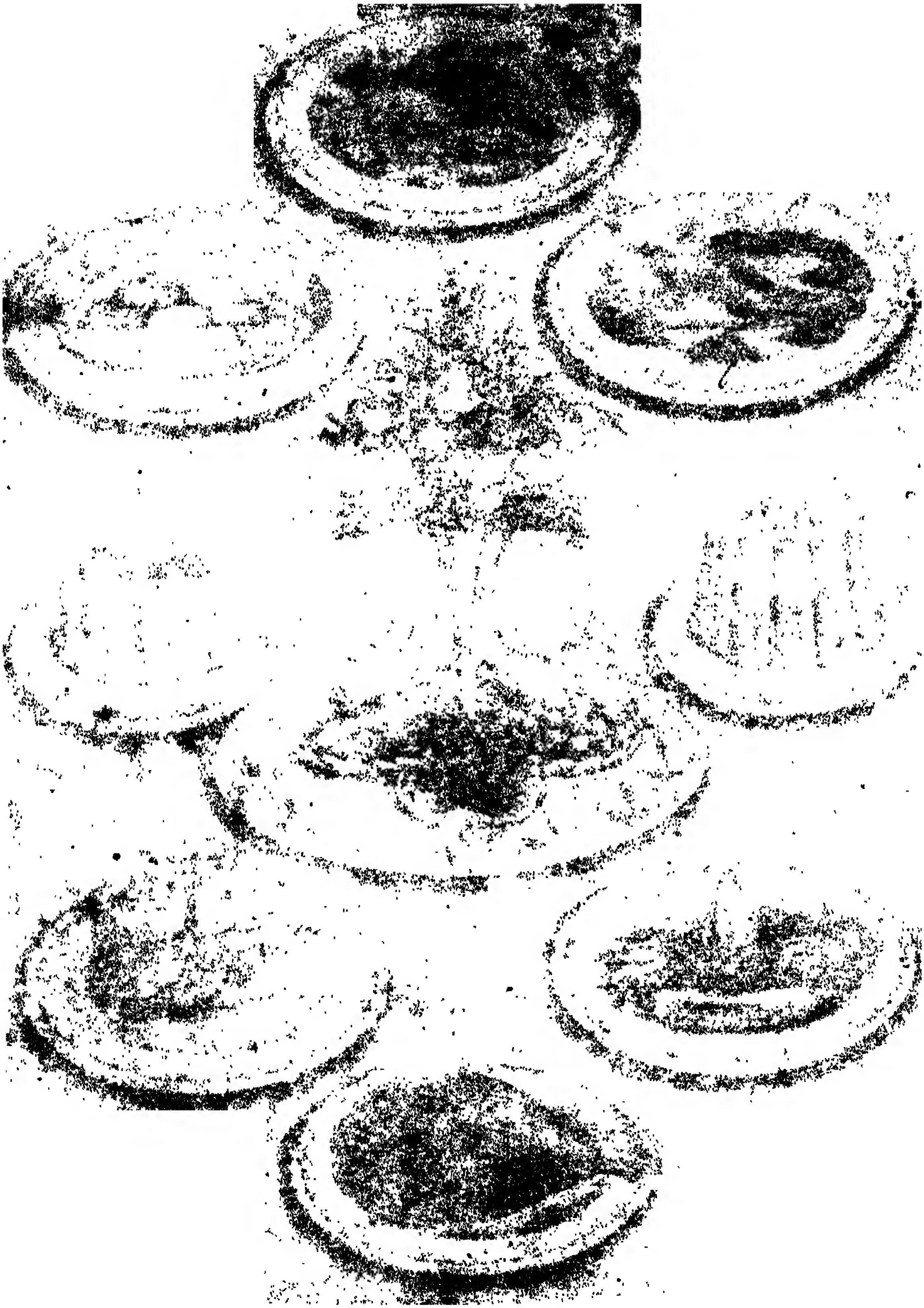


CASSELL'S

HOUSEHOLD GUIDE

TO

EVERY DEPARTMENT OF PRACTICAL LIFE:

BEING

A Complete Encyclopædia

OF

DOMESTIC AND SOCIAL ECONOMY.

NEW AND REVISED EDITION.

VOL. III.

CASSELL & COMPANY, LIMITED:
LONDON, PARIS & MELBOURNE.
1910

INDEX TO VOL. III.

CASSELL'S
HOUSEHOLD GUIDE.

OCCUPATIONS ACCESSIBLE TO WOMEN.—XIII.

SUGGESTIONS FOR EMPLOYMENT.

THE miscellaneous "suggestions" advanced on all sides for the advantageous employment of women are so numerous, and in some cases so wise, that we propose to gather them together for the benefit of the readers of the "Household Guide." It should be remembered, however, that they are "suggestions" only, generally needing the head and hands of a clever woman to mould them into the proper form. Many women will perhaps find them impracticable, but others, from the materials which lie around them in their daily lives, will, with the assistance of our "suggestions," discover a means of making an addition to a small or uncertain income. The great desideratum at present amongst women is to obtain some employment which can be pursued at home, or at least with only a few hours' absence from it; for although remunerative work be necessary, the home life must still go on, the children must be taken care of, and the house kept comfortable.

One of the most sensible ideas for women's work, which originated, we believe, in the columns of a weekly paper, was gardening, or, as the writer put it, "lady gardeners." It was suggested that ladies having a very small competence might take the lease of a cottage with a large garden in any locality in which they may have connections, and render the garden profitable by the sale of flowers, and such fruits and vegetables as they find it possible to grow. There is a certain "knack" in cultivating flowers, which goes farther than any amount of technical knowledge; and if a lady-gardener have acquired this, and be also physically strong enough to do the light part of the daily garden work, the opinion seems to be that she will find the employment not only healthful but lucrative. The writer proceeds to say that "ladies having properly fitted themselves for the post might be able to take the post of head-gardener at country seats where a few under-gardeners are kept." Many ladies are in the habit of acting as their own head-gardeners, and seem to manage admirably, even in the present day; so this seems a not unpromising idea, and one we expect to see adopted.

From a recent writer on the subject of farming and gardening for women we quote a few lines of sensible advice:—"Without doubt many women are farmers, and in many cases succeed; but in nine cases out of ten they have been farmers' wives or daughters, and after the deaths of father or husband manage to work their land with advantage. The first thing to do in taking a farm is to beware of paying a fancy price for a small amount of land, though the small tenant must of course expect to pay more per acre than the large one; but the difference ought not to be very great. The next thing to be considered is whether a woman can manage arable or pasture land the best. My advice is, as she cannot do hard work herself, all pasture would be best, as it pays better, and is more easily superintended. The lady farmer should rent land that is thoroughly drained, even if she should have to pay five per cent. on the capital which a selling-lease should obtain, if possible; and in any case a valuation clause should be inserted, so that she may reap some benefit when leaving. Poultry-keeping is of course a necessary adjunct; but I do not believe a beginner can make them pay. Experience in this matter, however, is the best teacher. Early rising, careful superintendence of labour, economy in every trifle, and a mind open to receive and gain all information possible, are great essentials to success. Last, but not least, a greater profit is to be obtained from a small plot of land well cultivated than from a great deal and too little capital for its cultivation. This last axiom is borne out by the experience of every one; and a market garden on a small scale appears to be a safe investment for a woman of sufficient energy and acquirements, with a small capital."

The next suggestion is also a valuable one; it is the opening of the situation of librarian to educated gentlewomen, either in public institutions or in private families of rank or wealth. From the reports of the recent Conference of Librarians we learn that the Americans have already set us an example here, and in the Public Library at Boston, U.S., seventy ladies are employed, a few men only being kept to lift the heaviest books on the high shelves. The ladies appear to have given the utmost satisfaction in this position, to which they appear thoroughly suited. The work is such that a lady of good attainments and education could undertake and enjoy. It requires no great physical exertion, no exposure to the weather, and no hardship which the most delicate would shrink from. The salaries in this profession are so limited that they are not sufficient for the support of married men with families, nor are they objects of ambition to the single man with any fairer chances in life; but they would nevertheless form a good provision for a single woman, who, upon even this small pittance, might manage, with economy, to keep herself in comfort and as a gentlewoman.

The occupation of bee-keeping is a most suitable one for women, and very remunerative if intelligently pursued. In Canada it has spread with great rapidity, and even in the large towns it is found profitable. The capital required for commencing is so small as to be within the reach of any one having a large garden in which to keep the hives. The yield of honey from one hive alone is, we believe, estimated at from 80 to 120 lbs., and the prices realised in England for honey are very high.

A "Ladies' Commission Agent" would be a most useful addition to our "helpers" in every-day life. The personal requisites for this occupation would be good health to enable the agent to go out in all weathers, and bear fatigue well; experience, and a knowledge of how to buy, and the best places at which to procure every article at a fair

price; good taste in selection, and lastly sufficient honesty to resist the bribes which would surely be offered, when once this vocation became known. Of course the lady agent must be resident in or near London, and all incidental expenses—train, omnibus, cabs, and postage—must be charged to the employer, as well as a commission on the purchases, or, if preferred, a certain amount per diem as a fee. Ladies residing in India, or the colonies, find it particularly difficult to arrange for making purchases in England; friends, and relatives too, complain of the inconvenience entailed by commissions inflicted on them by absent country cousins, and there are many invalids, even in London itself, who would gladly avoid the fatigue of shopping if it could be done for them by an efficient deputy. In all these cases, a clever, painstaking woman, with lady-like manners, and good taste, would be welcomed as a reliable help, in dealing with dress and dressmakers, furniture, working materials, and all the minutiæ of household and family difficulties.

Akin to this last-named office is that of "Lady Cicerone," a suggestion put forth in one of the newspapers. Ladies, either English or foreign, on coming to London, are frequently greatly at a loss where to find the best shops, and to learn the best methods of going about the modern capital of the world. They would, doubtless, be thankful to secure the services of a thoroughly competent gentlewoman who, knowing town well, would conduct them to its "sights, sounds, and shops;" and would consent to take a moderate remuneration per day. A fair knowledge of languages would be of service to the lady cicerone, in dealing with foreigners, and a connection might be formed through the various hotel-keepers in town.

HOUSEHOLD LAMPS.—II.

THE ARGAND.

THE lamps next to be noticed are those which are constructed to burn the heavier and less inflammable oils, such as those known as sperm and colza. To the construction of these much attention has been given by men of science, chiefly with the view of insuring a sufficient supply of air to the flame to procure perfect combustion of the oil. We need not here describe the various forms of lamps devised for this purpose, but will pass at once to that invented by M. Argand, and known as the Argand lamp, which is the model upon which the now well-known moderateur lamps are constructed. The great feature of the Argand lamps is that the wick is in form a hollow cylinder, through the centre of which a current of air is allowed to pass, thus insuring the complete consumption of the oil, and, consequently, a brilliant flame, free from smoke and smell. As we shall have to refer to this lamp in connection with the French moderateur, we give a diagram showing its construction. Fig. 3 shows the burner of an Argand lamp; in section A is a hollow tube of metal through which the air passes, as shown by the arrow. B is a second tube, which is soldered to the flange C, thus forming a kind of circular trough or well. In the internal tube is cut a spiral groove; and into this trough is fitted a ring of metal which carries the wick. This ring has a small stud of metal which slides round in the groove of the inner tube, and is connected with the wires, D D. When, therefore, the disc, E, with these wires attached, is made to revolve, the wick is raised or depressed, as may be required, thus regulating the height and size of the flame. F is a cup which is attached to the bottom of the burner, to receive any oil which may overflow, and G is part of the chimney used to increase the draught. The oil flows into the burner through the tube, H, from the reservoir. In order to set this lamp burning, the wick should be passed over the ring and screwed quite down. The top should then be cut off quite evenly all round the tube. As soon as the wick is saturated with oil it may be ignited, and the chimney placed in position, when an intensely white and brilliant flame will be produced.

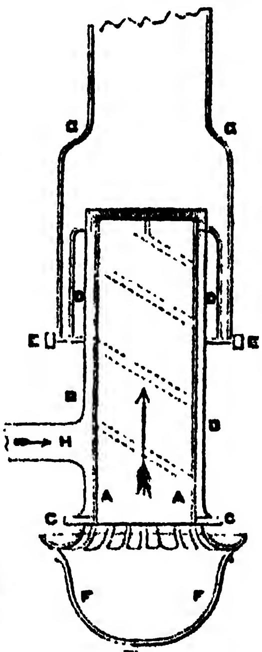


Fig. 3.

One of the chief difficulties in the use of the Argand lamp is that of properly regulating the supply of oil, and various plans have been proposed in order to render this constant and equal, and at the same time to remove the inconvenience attached to the necessity of having the reservoir above, and in immediate proximity to the burner. Of these the most successful is that known as the moderateur lamp, which is an Argand burner in principle, with an arrangement for forcing the oil up from a reservoir enclosed in the pedestal of the lamp, by means of a piston and springs. Notwithstanding, however, the great ingenuity displayed in the arrangement, these lamps are liable to get out of order soon, and for constant work are not to be compared with the old Argand burners. The plan of trimming and working the moderateur lamps is precisely similar to that given for the Argand, except, of course, that the oil must be pumped up to the top of the wick before it is ignited.

In working lamps of this description, the following matters will require attention. The cotton wicks must be perfectly dry before they are placed in the lamp. This should be thoroughly well done by placing them in the oven, or before the fire, just before fitting them to the lamp. In cold weather the oil should be warmed, as some oils, particularly sperm, frequently become solid, and, of course, do not then flow freely down to the wick. The oil cannot be too warm, the hotter it is the better it will burn. And, lastly, the upper portion of the lamp, whether Argand or moderateur, should be kept perfectly clean by frequently washing it in strong soda and water, to remove the clotted oil which is sure to accumulate on the working parts and hinder their proper action.

Of all the lamps we have mentioned in these articles there are almost numberless modifications, more or less useful as the light is required for a variety of purposes. There are some lamps which are excellent in themselves, and good as regards illuminating power, which are, nevertheless, by far too complicated for general use, or to be managed by ordinary servants. The three great requisites of a household lamp are safety in use, simplicity of construction, and ease of management while burning.

With regard to the management of lamps, it may be remarked that one of the principal sources of imperfect action is want of cleanliness in the burner the upper part of the wick often becomes charred, and thus prevents the free supply of oil which is required to support combustion. In all cases this burnt cotton should be removed before the lamp is lighted a second time. It is not necessary to cut the wick in every case; but the top of it should be wiped with a piece of rag or soft paper. With ordinary care any of the lamps we have mentioned will do good service in the household; but it should always be remembered that unless a lamp is properly trimmed and kept clean it cannot be efficient.

CAGE-BIRDS.—V.

THE CANARY (*concluded from Vol. II., p. 345*).

We append a few additional hints on breeding these birds. Canaries should not be put up for breeding too early in the season. When the nests are made, the hens soon commence laying. A canary lays, on the average, two to five eggs, and the time of sitting is thirteen days. If, three days afterwards, any of the eggs remain as they were, remove them with a warm hand, and place them gently in some water. If they are alive, you will then, by watching, see some evidence of the fact, and must tenderly replace them; if you do not, they may be destroyed. If one of the birds is quarrelsome, it is best to remove it, and put another in its place.

When birds are sitting, it is not desirable that they should wash themselves all over, but it should be remembered that the canary loves a bath, and that he should be judiciously indulged in this way.

German canaries are the most delicate, and, in our capricious climate, are not long livers; it is not well, therefore, to use them for breeding purposes. The Belgian canaries are large, good-looking birds generally, give a healthy stock, and are most solicitous in attending to the wants of their offspring.

All birds of a uniform colour, when paired together, produce their exact counterpart. If a male grey be united to a mealy hen, or *vice versâ*, the issue will be more handsomely marked than the parents.

The materials for nest-building can be purchased of the dealers, but before using they should be freed from dust and dirt, and well washed in clean hot water to destroy vermin.

If you wish to have birds with beautiful plumage, select those having such points of perfection in this way as we have already enumerated. If not particular in this respect, the grey canaries will be found excellent breeders and good nurses. What are called "fancy" birds are very troublesome to rear. Two birds of small value often produce a very fine breed. Should the parent bird neglect to feed the young—a result which sometimes follows pairing at the wrong time of year, and from pairing birds before they are old enough—procure a piece of stale wheaten bread, the best; grate, and mix it with some bruised and scalded rape-seed and a small portion from the yolk of a hard-boiled egg. Remove the nestlings to a warm corner, and cover the cage up to exclude draughts. Feed with this preparation every quarter of an hour, using, by way of spoon, the finely-pointed end of a short stick. Occasionally let a drop or two of water fall into their open beaks.

Young birds, unless neglected, should not be removed until they are five weeks old, and their food should be very gradually changed. Afterwards keep them in a warm room, and within hearing of a good songster, for the reasons already stated. During breeding you must not pry too closely into the proceedings of your birds. When it is found either desirable or necessary to feed the young birds by hand, they should be removed from the nest when they are about eight or nine days old.

The average duration of a canary's life, in a state of celibacy, is from sixteen to twenty years; but when kept for breeding, it will last scarcely half as long.

In feeding your birds, see that the canary-seed is large and glossy, and the rape or flax-seed large and new; and in mixing them together, use the two last in smaller proportions. Give a very little bruised hemp-seed occasionally. In the case of constipation, to which the birds are subject during incubation, a little boiled bread and milk should be given them twice a week. Plantain and lettuce-leaves are useful for this complaint. Great care should be taken with the food while breeding.

Birds should have green food occasionally, but not too often; and for this purpose it should be gathered dry and given fresh. It is cruel to keep a poor little prisoner within sight of such a tempting luxury as green food, and yet neglect to gratify him now and then with a gathered leaf.

Catching Birds when Loose.—When you are in the habit of letting your birds loose, to fly about a room or in the aviary, and want to catch them, use a circular hoop-net of stout string, made deep, and fastened on a wire hoop attached to a pole about six feet long—not less. By the skilful use of this net, you may secure the bird without destroying the beauty of its plumage.

Deal Bird-cages.—Cages of this kind are apt to harbour vermin, and therefore should not be used; mahogany is the best material. The point of a fine needle is useful in removing such vermin from the birds, and this should be done promptly, lest the poor little things should be tortured to death by their abominable enemies.

Cure for Baldness.—Should your canary become bald about the head or neck, and be given to moping, there is no doubt that he has the "surfeit." This arises from the bird being fed on bad seed, or unripe green food, causing a humour of an acrid nature to exude from the skin. Wash the bird's head night and morning in salt and water, drying it on a soft clean cloth. Then rub in on the bald places a little hog's-lard or fresh butter. Repeat these operations for a week. This will cure the disorder, and in the spring the feathers will again begin to appear.

Moulting.—When a canary moults in July or August, according to the warmth or coldness of the season, all you need do is to keep him quiet and free from draughts. Feed him with a very small quantity of raw beef, scraped, and moistened with water, once a week, and occasionally a little of the yolk of hard-boiled eggs, with now and then a piece of sponge-cake, and ripe chickweed in full flower.

A Cure for Cage-birds that are Egg-bound.—When the hen commences building her nest, mix some yolk of egg hard-boiled with some stale sweet bun, and add some finely-powdered loaf-sugar; continue this until she has laid two or three eggs. The object of this is to assist in lubricating the vent, thereby enabling the eggs to pass freely. As many valuable birds lose their lives in this way, it is necessary that these instructions be attended to. For this hint, and for several others, we are indebted to Mr. Kidd.

Cutting the Claws.—Do not let the bird's claws grow too long, and never cut them with a sharp knife, but use a pair of scissors, and be careful, while holding him for this purpose, that you do not press unduly on any part of his body. The bird will soon understand the meaning of this process, and submit to it with cheerful gratitude.

Husky Canaries.—When huskiness ensues, the bird should be kept warm and free from draught. Its food should consist of some finely-scraped beef, mixed with hard-boiled yolk of egg, with a little cold water to dilute. Before giving this, put some boiled milk into the drinking-glass; do this for two days, then give the prepared meat.

Teaching the Canary Tricks.—The canary is generally a very tame bird, and, if made a pet of, will acquire or may be taught many amusing little tricks, expressive of his appreciation of your love, and consequent attachment. Of all birds, he is the least shy and suspicious.

Canaries sometimes acquire the bad habit of disfiguring themselves by picking out their small feathers. The only way of combating this habit is by suspending a counter attraction for them to peck at. Mr. Kidd once recommended for this purpose a piece of packthread saturated with sugar and water, and hanging nearly as low as the upper perch.

HOUSEHOLD AMUSEMENTS.—XIX.

THE COLLECTION OF POSTAGE-STAMPS.

ANY one who has ever fairly entered on the collection of postage-stamps will not require to be informed as to the charms it possesses as an amusement. But we have known it occasionally to be discouraged in a household, as an idle occupation, and have heard the question asked, What can possibly be the uses of it? We should wish to induce all parents to countenance the young in this pursuit, believing that, in addition to its place as an innocent pastime, it serves some very useful ends, which we will here explain for the benefit of the sceptical.

First of all, the young collector of postage-stamps is made better acquainted with the geography of the globe, and the various states into which the world is divided. When he sees the stamp of a particular nation, he wishes better acquainted by following this hobby is, that of modern history. The stamp album impresses on the minds even of the thoughtless the changes which take place from time to time in the political constitution of states. The young collector knows well enough that the Spanish stamps bearing the effigy of Queen Isabella are now out of date, for that queen has been deposed, and after many changes of government her son now rules in her stead. If he began collecting only a few years back, he will well remember that certain German states, which formerly issued their own stamps—such as Hanover, Brunswick, Lubeck, &c.—after the war between Prussia and Austria in 1866, became merged in the North German Confederation, and now form part of the great German Empire. In a similar way, a few years before the recent great changes in the political area of Europe, he will know that there was another which united the states of Parma, Modena, the Two Sicilies, &c., under the


NICARAGUA.


NEW GRANADA.

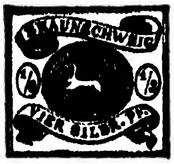

VENEZUELA.

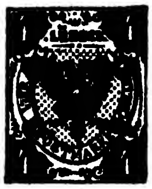
ARGENTINE CONFEDERATION.


MONTEVIDEO.

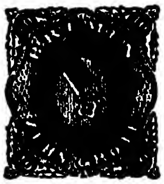

PARAGUAY.


HANOVER.


BRUNSWICK.


LUBECK.

HAMBURG.


BREMEN.


RÉUNION.


PARMA.

MODENA.


TUSCANY.


SPAIN.


CONFEDERATE STATES OF AMERICA.

at once, if he is an intelligent youth, to know its geographical position, and goes to his book for that purpose, or probably traces it out in the map. This lends new interest to his geographical studies at school, which he is apt to find rather dry when unattended by any special object. In this way he has impressed on his memory much which other lads readily forget, if they have ever been taught it. He knows at once that New Granada is a South American state, and can probably tell you its position relative to Brazil and British Guiana. The Argentine Confederation is not an unfamiliar name in his ear, and he has possibly learnt the number and situation of the provinces comprised within its boundaries. He knows the position of the islands of Mauritius and Réunion, and can tell you to what power each belongs, with, perhaps, something of their past history; and the stamps of Liberia have, perhaps, made him acquainted with the interesting experiment carried on in that free little republic on the benighted coast of Africa. So he gathers scraps of geographical information as he proceeds, which in after life he may find very useful.

Another branch of knowledge with which he becomes kingdom of Italy. All these stamps of extinct duchies and kingdoms are now more valuable in the eyes of the collector, from the historical interest they possess, and as records of a state of things which has passed away within his own recollection.

Besides the geographical and historical, there is the biographical interest attaching to postage-stamps, suggested by the portraits they bear. These the collector will soon learn to distinguish, and they will often induce him to study the lives, or, at least, to become acquainted with some brief history of the persons they represent.

Again, the collection of postage-stamps conveys a knowledge of the currencies of different nations, and leads to a clear idea of the relative values of the coins used by the various states. Cents, centimes, and centavos; schillings, groschen, and kreuzers; reals, reis, scudi, and kopecks are no longer meaningless terms, but the young collector finds it necessary to ascertain their precise import, so that he may be able to value his stamps correctly in purchasing or exchanging them. In fact, in this respect, as well as in acquiring a knowledge of the geographical position of various countries, the young postage-stamp

enthusiast imperceptibly acquires a training which he may afterwards find very useful.

Nor are the uses of postage-stamp collecting exhausted even yet. The stamps have their value as works of art, and some of very superior art, both in design and execution; and this, again, is a profitable subject for study.

It is plain, then, that there is plenty of material in postage-stamps to make their collection a useful as well as an amusing pursuit; and we hope we may induce some of our readers who have never tried it to take it up. In another paper we shall give a few hints and some miscellaneous information to postage-stamp collectors.

MAKING SWEETMEATS.—V.

Gum Lozenges and Pastilles.—Take sugar, 24 oz.; starch, 4 oz.; and gum arabic, 8 oz. Mix these together with water into a stiffish paste. Roll this out on an oiled marble slab; punch out into shape, and put it on a wire sieve, exposing it to a gentle heat in a slow oven. Gum pastilles are made without starch, powdered gum being mixed up with syrup to a proper consistence. They may be cut either round or square.

Lemon Lozenges and Pipes.—Dissolve in a pint of water 20 drops of essential oil of lemons, and ½ oz. of gum arabic, and add 3 lbs. of loaf sugar. Knead altogether on a marble slab, and dust over with a little starch to keep it from sticking; then roll out into thin sheets, and cut it out into lozenges. If for pipes roll them out to the required length.

Vanilla Lozenges.—Mix 4 oz. powdered vanilla with 1½ oz. of loaf sugar. Mix these up with sufficient gum tragacanth to form the lozenge. Each one, if properly mixed, should contain 2 grains of vanilla.

Black Lozenges.—Take ½ lb. gum tragacanth in powder; add 4 oz. of powdered loaf sugar and 5 oz. of extract of liquorice. Make into a smooth paste with water, then cut into lozenges, and dry as above directed.

Brown Sweetmeats.—Take the cuttings and remains of any other kinds of sugared or candied preparation, pound extremely fine, and pass through a tammy. When in a heap, make a hollow in its centre, and place in it eggs enough to form a stiffish paste. Then reduce cinnamon, cloves, and a little bole armenia, to an impalpable powder, and add with sugar if required. Work all these ingredients well together with a little flour, and roll out to the thickness of about a quarter of an inch. Stamp or cut the paste into circles, stars, or other figures; place them on white paper, and bake them for half an hour.

HOUSEHOLD CHEMISTRY.—VIII.

ON THE WATER CONTAINED IN FOOD.

(*Continued from Vol. II., p. 331.*)

During the use of foods which contain much water it has been observed that less fluid is required to be taken in the form of drink than is needed when nutriment of a drier nature is used—such as wheat, rice, peas, oatmeal, maize, millet, and food of this class.

In wheaten flour, the amount of water has been found to be 2 ounces and 106 grains to every pound. Maize, or Indian corn, as it is often called, loses 2 ounces 105 grains of moisture from each pound, when dried. Rice does not lose quite so much—only 2 ounces and 70 grains. Oatmeal, so much used as an article of diet in the more northern portions of Great Britain, contains about the same quantity of water as rice. Rye contains a little less water than oatmeal, and peas a little more. One pound of figs has 2 ounces 252 grains of water in its composition; while, in the same quantity of dates, the water present amounts to 3 ounces 252 grains.

When the amount of water contained in flesh is examined, it is found, as might have been expected, that the tissues of young animals contain more fluid than those of older creatures. Thus, 16 ounces of flesh from the ox or cow contain 8 ounces, or half the weight of water, while it is found that veal contains as much as 10 ounces. If we examine the flesh of the sheep, mutton is found to contain 7 ounces 16 grains of water in the pound; but the same quantity of lamb contains 8 ounces and 40 grains of fluid. Of all flesh that of fowls probably contains the most water—1 pound losing by its extraction 12 ounces 107 grains. Pork does not contain so much fluid as either beef or mutton, for a pound loses only 6 ounces and 69 grains by being dried. Pigs' blood, of which black-puddings are made, contains 12 ounces of water in each pound. About the same quantity of water is contained in 1 pound of hens' eggs. Cows' milk contains about 1 ounce more; 1 pound (about a pint) possessing 13 ounces 333 grains of water. Human milk has even more water in its composition—14 ounces and 41 grains to the pound; and asses' milk contains 31 grains more water in the pound. Fish also, as might be expected from the element in which they live, contain a large proportion of water in their composition—the sole having as much as 13 ounces 374 grains in each pound. Mackerel has exactly 3 ounces less water than the sole. The salmon, however, has more—each pound loses 12 ounces and 143 grains, when dried. The cod loses a little more—namely, 12 ounces 400 grains; while the conger eel has 11 ounces 208 grains of water in each pound of its flesh. Each pound of flour contains 2 ounces 118 grains. The same quantity of cocoa-nut kernel has 6 ounces and 14 grains of water in its composition.

After having thus seen that the presence of a large quantity of water in the system is essential not only to health, but even to the preservation of life itself, the great importance of being furnished with an abundant supply of that fluid will be at once perceived. It will also be seen that water for drinking should be as free as possible from earthy substances, and especially that it should contain no organic or other deleterious matters. Perfectly pure water is a compound of eight parts by weight of oxygen to one of hydrogen. It is, however, not met with in Nature in a chemically pure state. This is owing to the readiness with which it dissolves other substances that it may meet with while passing through the atmosphere in the form of rain; or that it may afterwards remove out of the soil as it percolates through it.

We must now consider the gaseous substances that are met with in water. The most common is carbonic acid gas, which is produced so abundantly by the respiration of animals, and is almost always formed when any combustible matter is burnt in the atmosphere. Carbonic acid gas is a compound of 6 parts by weight of carbon to 16 of oxygen. Although this gas is so deadly to animals when mixed with the atmosphere and respired, yet it is the chief food of the vegetable world, when supplied to their roots in solution with water. To this it is due that the air we breathe is purified from a gas so deadly to us, while vegetable life is kept up by means of the readiness with which water absorbs carbonic acid. It is owing to its presence that water sparkles so brightly—especially when freshly drawn from the earth or when poured from one vessel to another. The difference between the refreshing taste of water newly taken from a spring, and the vapid, insipid taste of distilled or newly boiled water, is due to the carbonic acid contained in the one being absent from the other. The more gas the water contains, the more it sparkles and the more agreeable it is to drink. All effervescing drinks—such as soda-water—which bubble up, when suffered to escape from the vessel in which they were confined, owe this property to the large quantity of carbonic acid gas with which they are impregnated. The presence of

carbonic acid in drinking-water is also conducive to health, acting both as a refrigerant to the system, and also serving to allay any irritability of the stomach that may be present. The readiness with which carbonic acid dissolves in water is so great, that water will take up, in solution, its own volume of this gas.

Ordinary spring-water also contains a considerable quantity of atmospheric air dissolved in it. The air we breathe, as will be mentioned in another place, is a mixture, by weight, of 77 parts of nitrogen gas with 23 of oxygen, these gases being merely in a state of mechanical mixture. As it happens that water does not dissolve these gases in that proportion, it is found that the atmospheric air held in solution in water contains, by measure, 33 per cent. of oxygen instead of 21 per cent., the amount usually present in the air; thus, in the former case containing one-third, while in the latter only one-fifth is present. In consequence of water having this property, it is better fitted to support life in fish and the other creatures which depend for their supply of oxygen upon the fluid in which they live. It is owing to this that the air given out from snow, when it is melted, is found to contain less oxygen than that contained in ordinary water. The same thing happens with regard to the water of the ocean, where it is found that the salt water procured from the surface holds in solution air containing more oxygen than is found below at the depth of some hundred feet. This fact will probably account for the comparative scarcity of animal life in the ocean below that depth.

Another remarkable and useful property that water possesses is its great capacity for heat. Every one must have found that cold water either when drank, or applied to a heated head during sickness, cools more than any other liquid can when so employed. This is owing to the large amount of heat water requires to raise its temperature, the greater proportion of the heat applied entering into combination with the water as *latent heat*. To give an example of this, it is found that the quantity of heat required to raise the temperature of water one degree, (say from 60° to 61°) will raise quicksilver thirty degrees, from 60° to 90°; therefore, that an amount of heat enough to raise quicksilver twenty-nine degrees higher has so united with the water as to be unable to act upon the thermometer. That this heat is really hidden in the water in a latent state may be at once proved by mixing cold concentrated sulphuric acid with cold water, when the mixture will become at once extremely hot, in consequence of the latent heat being liberated.

It is owing to the large quantity of heat that water combines with, before it goes off in vapour, that the continual perspiration going on from every part of the surface of the skin keeps the body cool. The watery vapour constantly escaping from the lungs for the same reason also tends to preserve the interior of the body from too high a temperature. There is another gaseous substance found in rain-water, namely, ammonia. This is derived from the ammoniacal gas—the product of animal and other decomposition continually going on—contained in the atmosphere. The amount of this in rain-water will greatly depend upon the place where the rain fell. If in the country, little ammonia may be found, but if the rain-water were collected in the neighbourhood of some large town, the ammonia would probably be very abundant. In spring-water, however, the ammonia is absent, for the rain as it passes through the ground, gives off that gas to supply vegetation with its favourite food. But in passing through the earth in its way towards the springs from whence it is obtained, it dissolves out many other impurities, which tend to make the water more or less hard. The relative degree of hardness, and the nature of the substances on which that hardness depends, will vary according to the soil through which the water has passed.

The substance most commonly found in solution in spring-water is lime. This water contains it, either in the condition of the carbonate (chalk), or the sulphate (gypsum). It may appear strange that a white substance like chalk, which when added to water refuses to dissolve, and only makes the fluid opaque and milky, should be contained in a glassful of clear, bright, sparkling, filtered water. But that such is the case may be proved by boiling it, when the chalk will be at once thrown down as a "fur" or coating on the inside of the vessel in which it has been boiled. The explanation of this is, that although carbonate of lime is soluble in water that contains an excess of carbonic acid, when such water is boiled the carbonic acid being volatilised by the heat, the chalk is deposited. This is, therefore, one of the means employed to soften hard water of that description. If, however, the lime is in the condition of the sulphate—in which state it is known as gypsum—no amount of mere boiling will remove the lime the water may contain. In this case the only course to be taken is to add a sufficient quantity of the carbonate of soda to convert the lime into the condition of the carbonate. If this water be then boiled the chalk will be thrown down, sulphate of soda being left in the liquid.

Some water holds in solution a very large quantity of carbonate of lime, of which the calcareous springs of Knaresborough and Matlock furnish examples. Solid substances introduced into water of this kind, become incrusted with deposits of the carbonate of lime, the excess of carbonic acid that held the chalk in solution escaping into the air. If a mould of any object be made in some insoluble material, and introduced into this water, the chalk will become deposited, and an impression of the object in carbonate of lime obtained. The cast can be had of any thickness by suffering the mould to remain sufficiently long in the water. If colouring matter be occasionally added to the water, the cast procured will be also coloured. In this way casts may be produced of any tint that may be wished; or if any porous substance be introduced, its pores will become filled up in the same way, and it will apparently be converted into stone, or "petrified," as is commonly said. It is probable that many of the organic remains found in chalk and limestone rocks have become fossilised by a similar process.

Some of the most dangerous substances, considered in a sanitary point of view, contained in water are those of an organic origin. Some portion of these impurities may be derived from animal or vegetable substances cast into the water, or grown in it; but the larger portion is, however, derived from sewage. It usually happens that all the nitrogenous products obtained in this way, when they become mixed with a large quantity of river-water, absorb oxygen, and are slowly converted into inorganic matter, the nitrogen they contain being thus converted into nitrous and nitric acids; these acids in their turn uniting, as soon as formed, with lime and other bases that they meet with, form nitrites, and nitrates, while the carbon of which they were composed becomes oxidised into carbonic acid. In the same way, the hydrogen that entered into their composition is formed into water. Hence the presence of either the nitrite or the nitrate of any substance in water for employment in the household, should cause that water to be regarded with suspicion, however pleasant it may be to the taste and bright and sparkling to the eye. Water obtained from old wells situated near ancient churchyards often abounds in these salts, produced by the decomposition of the dead bodies. The water of a well at Highgate, very near an old graveyard, was found to contain a very large quantity of the nitrites and nitrates of lime and magnesia; in addition to this, a large quantity of other salts were found, probably derived from the same source. Hence, by ascertaining the proportion

of these salts, the quantity of sewage and other impurities with which it may have been in contact can be ascertained.

Shallow wells often have a considerable quantity of organic matter in the water they contain. If in the country, this may result from the manure applied to the land. In large towns the same result would follow from the drainings from cesspools and similar sources. It need scarcely be said that the use of such water is to be avoided by any one to whom health or life is valuable.

On page 338, vol. i., we explained the uses of food as producing heat and force, and repairing the waste continually going on within the human frame. We then stated that we should have to refer to these matters again. We must now do so.

Not only has the food we consume to supply heat and muscular force, and to repair the waste continually going on within the frame; it has also to supply continually material, out of which the growth of the body during youth may be kept up. It is, therefore, necessary for us to ascertain the chemical composition of the human body, as well as the proximate principles of which food consists.

A man of the weight of one hundred and fifty pounds contains as much as one hundred and eleven pounds of oxygen. If this oxygen were made to assume the form of gas, instead of being in chemical combination, it would be found that it would occupy a space of one thousand three hundred cubic feet. Hydrogen, another element, is present to the amount of fifteen pounds. If this gas were present in a gaseous state, it would fill a balloon capable of holding three thousand square feet. The cause of the body containing such an immense quantity of these two gases, is principally due to the large quantity of water in its composition. The human frame also contains as much as twenty-one pounds of carbon. Nitrogen is also present in the body; it is chiefly found in the muscular tissues; the quantity would weigh about three pounds nine ounces, and if it assumed the form of gas, it would occupy a space of about twenty cubic feet. There is also 1 pound 12 ounces and 190 grains of phosphorus. This phosphorus in its pure state is so liable to combustion, that it is necessary to keep it in water. In the body it is chiefly found in the form of phosphoric acid.

THE HOUSEHOLD MECHANIC.—XXXIV.

CHEAP, SIMPLE, AND TASTEFUL HOME-MADE FURNITURE.

(*Continued from Vol. II., p. 313.*)

As being also an article of extremely simple construction, we give a stool, Fig. 1. Take three pieces of three-quarter-inch board, one foot ten inches long and two and a half wide, for the legs. They are arranged in an equilateral triangle, of which each side at the bottom measures fifteen inches, and at the top eight. The method by which they are screwed together, by means of cross pieces of half-inch board, is shown in the plan of the top, Fig. 2. This exhibits the construction before the top, a circular piece of inch plank, one foot in diameter, is screwed on. When this is fixed, canvas is tacked partially over, stuffed and fastened down; oil-cloth is then put on, and secured round the edge with ornamental brass nails. Eighteenpence would buy everything required for making it.

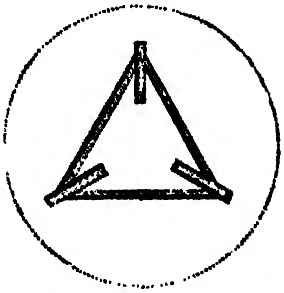


Fig. 2.

Fig. 1.

Almost similar in construction, as regards its lower part, to the table last described, is the writing table, Fig. 3, the only difference being that the top is carried on a framework which passes all round, and is dovetailed together at the corners, instead of being supported by cross-ledgers merely; the materials used are of the same kind, and the top is covered with oilcloth in a similar manner. After this last has been stretched over the top, the pieces forming the back and sides and the strip in front (which are dovetailed together at the corners) are screwed on. The upright pieces which form the divisions between the pigeon-holes, are next placed in position and screwed from the back; then the board, forming the shelf, is fastened down on them; and, lastly, the strips passing in front of them at bottom and top (the last indented to form arches) are screwed on. The whole of this superstructure is of half-inch board. The ornamental open work is sawn out with a frame-saw, and the edges bevelled into a concave moulding with a gouge. The dimensions of this table are, height, 2 ft. 4 in.; breadth, 3 ft. 3 in.; depth, 2 ft. 3 in. Cost of materials, 7s.

Greater outlay and labour are involved in the construction of the bookcase, Fig. 4. The total height of this article, including crest-board at top, is 7 ft. 9 in.; the breadth is 4 ft. The lower part forms a cupboard, and is made separately; the height of this is 3 ft. 2 in., and the depth 1 ft. 3 in. The ends are of ¾ in. board; ledgers (shown in section at A A, Fig. 5) are screwed across them, outside, at top and bottom. Strips, let into the ends, pass from end to end at the back, as at B B; also diagonal braces, C C. At the front is a strip similar to B, and let in at top; but at the bottom a wider strip, screwed on only. All this is extremely simple. Making the doors would appear to be a matter of greater difficulty to the amateur; but by adopting a simple expedient, the usual complex mode of putting together a door with mortice and tenon joints is avoided—*two thicknesses of board are used and clamped together.* This is shown in Fig. 6; lengths of ½ in. match-board are arranged vertically, to form the back of the door; over these a piece of French wall paper, with dark moreen ground and raised gold pattern, in imitation of embossed leather, is stretched, and on this the ½ inch wood, forming the front, indicated by dotted lines, is placed and screwed to the back. As the top and bottom pieces, A and B, are placed horizontally—that is, at right angles to the back pieces—perfect strength is secured. A door may be constructed in this manner with little trouble, and the embossed paper makes a handsome panel. The doors have to be fitted on with proper locks, bolts, and hinges, and when the top (of ¾ in. wood, projecting 2 inches beyond the doors and ends) is screwed down with flat-headed screws, this part of the structure is complete.

The bookcase proper is 5 ft. high without the crest-board, and 10½ in. deep. Pieces of ¾ in. board, dovetailed together at the corners, form the top, bottom, and sides;

the back is strengthened by diagonal braces, like those used in the cupboard, and the front by a single cross-strip at top. Ledgers are screwed to the ends to carry the shelves; and the crest-board at top, which is for decoration only, is screwed outside. The construction of the doors, which is in principle the same as that of those for the cupboard, is explained in Fig. 7; the dotted lines, as before, indicate the front pieces. These, as will be ob-

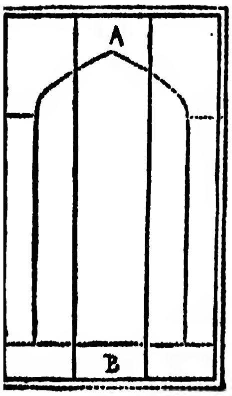


Fig. 6.

Fig. 4.

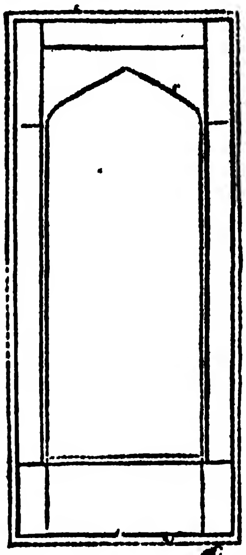


Fig. 7.


Fig. 10.

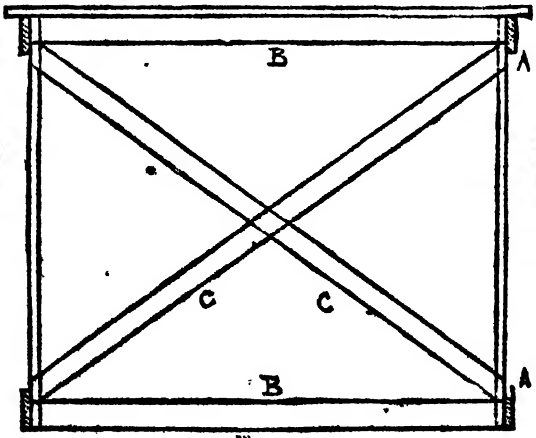


Fig. 5.


Fig. 9.

served, project beyond the back ones at the edges, and have to afford a resting-place for the glass, which has to be fixed in with beads. In both the upper and lower parts the back piece will project ⅜ in. beyond the front in the right-hand door, to form a ledge against which the left-hand door may shut. The backs of both cupboard and bookcase are covered with canvas, and lined within with paper to exclude dust. Such a bookcase will hold about 200 volumes of ordinary The cost of the materials will be about 25s.

Our next example is a sideboard, Fig. 8. Its height, exclusive of the ornamental back, is 3 ft. 2 in.; its breadth, 6 ft. 5 in.; its depth, 2 ft. The si of the two cupboard-like portions which form the ends are of ¾ in. board, placed vertically, and screwed together by means of ledgers at top and bottom; the hinder portions of these upright pieces, 2 in. wide, are carried through the top, as shown at A, and serve to support the ornamental back-board. Three-quarter inch strips pass diagonally between these end cupboards (as shown in the engraving), and are let into the backs of the inner upright pieces; and in front strips run at top and bottom from end to end. The panels in the doors are of the same material (imitation embossed leather) as

those shown in the lower part of the bookcase on the previous page. The spaces within the ends may either be fitted with shelves as cupboards, or with drawers; if the latter is determined on, considerably more labour, as well as more material, will be required; but the amateur is scarcely advised to attempt drawers unless he has acquired considerable proficiency in carpentering, since he will find them far more difficult of construction than any part of the articles given in this series of designs. It is by no means easy to make drawers fit accurately, and if ill made they will constantly stick and get out of order; if made, however, the corners should be dovetailed together, and the bottoms let in with a rebate, or, failing the proper tools to do this, they may be simply screwed on. The whole sideboard must be strongly held together by ½ in. match-board, screwed with flat-headed screws from behind, and running horizontally from end to end at the back. That portion of this match-boarding which appears above the top should be decorated with fret-work openings, cut out with the bow-saw and finished with the gouge as in the bookcase. The top should consist of ¾ or 1 in. board, and should overlap the ends and front by 2 inches.

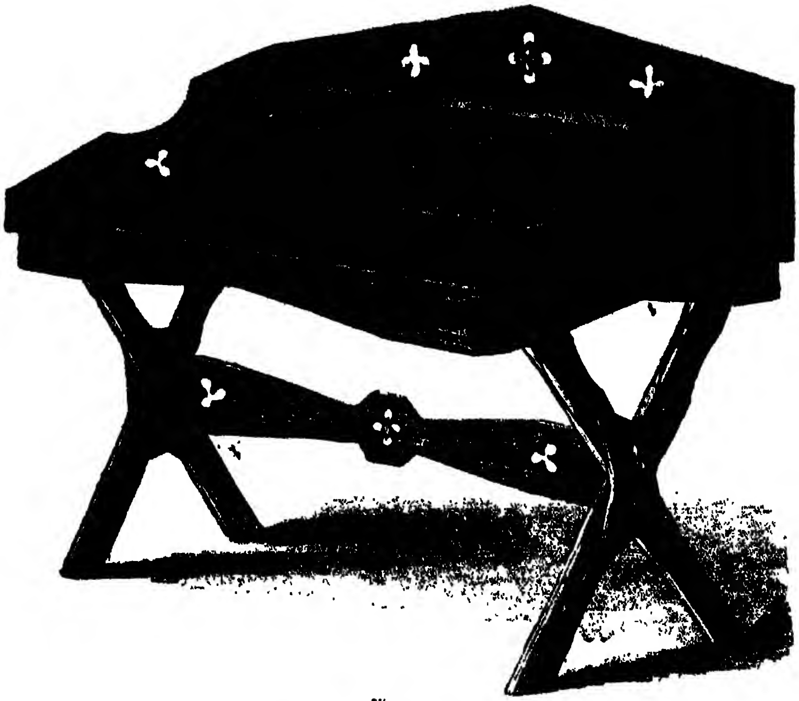


Fig. 7.

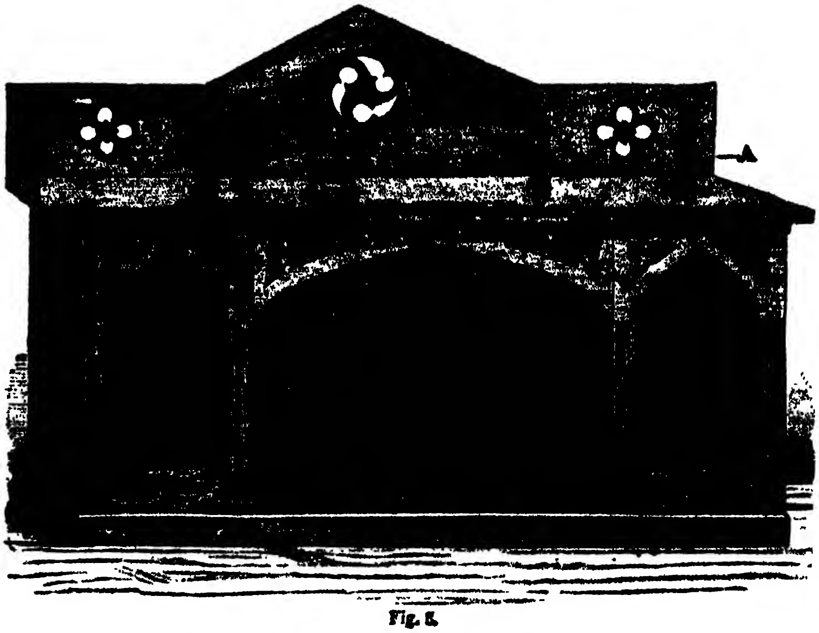


Fig. 8.

Fig. 9 is a chair of primitive simplicity as to form, but which will be found both strong and comfortable. Its total height is 2 ft. 9 in.; the height of the seat is 1 ft. 4 in; its breadth, 1 ft. 2 in. The six pieces of wood which form the sides of the seat, the back, and legs, are cut from ¾ in. board; the pieces across the back and seat are of ½ in. The seat is stuffed and covered with oilcloth, fastened on with ornamental brass nails, like that of the stool; as are also the seat and back of Fig. 10, an armchair on the Glastonbury model, in which similar materials are used; but in this, for the sake of greater comfort, the seat should be 1½ in. lower than in the last, and also of larger dimensions, about 20 inches broad by 18 deep. The construction of both these articles is well explained by the woodcuts.

The materials for the sideboard would cost about 15s.; for the armchair, 3s. 6d.; and for the ordinary chair, 1s. 9d.

All these articles will require a final polishing to render them complete, first applying two coats of size. If the natural colour of the deal, somewhat heightened, be not objected to, a good coat of varnish laid on evenly with a brush will suffice; or, to give a somewhat deeper tinge, French polish may be used in the same way. Some persons may prefer to use red pine boards instead of deal; they are slightly more expensive, but are more easily worked, and these when merely varnished or French polished assume a good rich colour. If, however, an oak, a walnut, or mahogany colour is desired, prepared stains for imparting them may be bought at any ordinary oil and colourman's. The selection of a particular kind must depend on individual taste. These should be applied according to the directions given with them; the varnish being brushed over afterwards. But if a jet black like

ebony should be wished for, the reader is advised to follow the instructions given in our article on Wood-carving, page 184, vol. ii., and he should remember that pinewood takes this ebony stain far better than deal. We should also recommend to his consideration our other remarks on wood-staining given in that place.

The appearance of a suite of this furniture is by no means to be despised, and, as the reader will see from the figures we have given, the outlay involved is inconsiderable. It is true that the prices mentioned are for materials only, but it must be remembered that the labour spent is to be considered in the light of relaxation. There is a large class of men whose work is sedentary, and, to some extent, mental, of whom clerks may be taken as a type, who require some evening occcpation which would afford bodily exercise, be interesting, and at the same time form a complete relief from their daily toil. To such persons we commend this work; they will find it combine all these requisites, and, in addition, save them many pounds at the furniture dealer's.

OCCUPATIONS ACCESSIBLE TO WOMEN.—XIV.

SUGGESTIONS FOR EMPLOYMENT (*continued from p. 2*).

SEVERAL persons are engaged at present, we believe, in London, and other places, in giving lessons in fancy work, so that the idea is not a new one; but an extension of it would be a very excellent thing. For example, if every young ladies' school had a "mistress of needlework," as one of the regular staff of instructors, there would be fewer complaints of the idleness and helplessness of the modern young lady. This mistress should have a complete knowledge of the mysteries of dressmaking and cutting-out, darning and mending, and all the various branches of fancy work. A lady who has acted in this capacity has informed us that 10s. for a lesson lasting from one and a half to two hours is usually charged.

To an educated gentlewoman the position of monthly nurse seems not unsuited; the training required is short, and not very expensive. We have already entered into the particulars of it in our notice of the training of midwives, and medical training generally. The comfort of exchanging specimens of the usual ordinary lower-class monthly nurse for the attendance of a refined, gentle, and educated woman, would be very great indeed; and if she be a lady by birth she is as well fitted to associate, when "off duty," with her patient's family as if she were a "sister" in uniform. This idea seems a valuable one, and the work is within the powers of any ordinarily educated gentlewoman. The pay of this important post is usually very excellent, varying greatly, however, according to the rank of the patient, as much as twenty guineas being sometimes paid for the month.

The travelling as nurse on voyages to India seems a practical suggestion. A first-class passage is usually taken for the nurse, and a salary of from £5 to £10 is paid for the attendance; the remuneration for the return journey is higher, being from £15 to £40, and all expenses paid. The arrangement may continue after the arrival in India, and we should think the "institution" of nursery superintendent is one that would be admirably suited to English mothers in India, who would be, no doubt, thankful to have a reliable person about them, to whom they could entrust their children, and who might be a pleasant companion for them when in out-of-the-way stations, remote from society and friends. In England, we hope to see the idea of nursery superintendent largely adopted. With one or two nursemaids under her, with little menial work, or physical exertion, a trustworthy, kindly, religious gentlewoman would find her place, and would soon become an indispensable adjunct in a nursery. Her manners and influence would have immense power in forming the characters and manners of young children, and to those ladies whose position and rank require them to be much absent from home, the presence of a reliable person at the head of the nursery would spare them much anxiety and trouble.

A very good paying business, and one well suited to a practical, managing gentlewoman, is that of letting lodgings. A weekly paper says, in writing on the subject:—"Many a widow with daughters is left with a well-appointed house, but on the death of the husband and father, the annual income dies, the furniture is sold, and the whole family becomes scattered in the struggle to earn some miserable kind of livelihood, in which, perhaps, every member is unhappy. How different would it be if they would keep their pride in subjection, and receive lodgers into their home, and let each member take her share in superintending the domestic arrangements for the comfort of their lodgers." Of course, no ladies having sensitive feelings should attempt this mode of life; and should everything be left to the management of ignorant servants the result would certainly be failure and dissappointment.

HOUSEHOLD LAW.—XI.

LANDLORD AND TENANT (*continued from Vol. II., p. 340*).

Rent.—If a rent of so much "per annum," or "an annual rent" is mentioned in the lease or agreement, it will be payable once a year on the anniversary of the commencement of the tenancy. After the death of the landlord the rent must be paid to his heir, *i.e.*, if the landlord had the fee simple (the absolute ownership); but to his executors, if he held a lease only.

All arrears of rent are recoverable by distress. A distress is one of the most ancient and effectual remedies for the recovery of rent. It is the taking, without legal process, cattle or goods as a pledge to compel the satisfaction of a demand, the performance of a duty, or the redress of an inquiry. The act of taking, the thing taken, and the remedy generally, have been indiscriminately called a distress, an inaccuracy which the older text-writers usually avoided.

If there is a covenant in the lease that the rent shall be paid on a certain day, and no particular place is mentioned, the tenant shall seek out the landlord, and make a tender of the rent upon the day fixed.

A bond, bill of exchange, or promissory note, given and accepted in payment of rent, does not, unless judgment has been recovered on it, suspend the landlord's right to take immediate proceedings by distress, or by action for the recovery of the rent; as the law considers that rent is a debt of a higher nature than money due on a bond, bill, or note. If a tenant be an under-lessee, he is liable for all arrears of rent due from his landlord (the lessee) to the superior landlord.

A tenant will remain liable for rent, unless at the time when he is entitled to do so he deliver up complete possesion of the premises, or the landlord accept another tenant in his stead.

Rent may be paid either to the landlord or to his authorised agent, and if the agent's authority has been revoked by the landlord, the tenant is not liable if the rent has been paid to the agent, unless the tenant has had notice from the landlord.

If a tenant be directed by his landlord to remit money by the post, and it be lost, the latter must bear the loss, but if not authorised so to remit, the loss would fall on the tenant.

If a tenant, in order to protect himself, pay charges which are, in fact, due from his landlord, but which are assessed upon the premises he holds, and may be distrained for there, he can, in settling with his landlord, claim to have

such payments taken as on account of, and in deduction of, his rent, and may decline to pay any rent until he is fully reimbursed. Amongst such payments are ground rents, rent due from the immediate to a superior landlord (when the tenant actually in possession is only an under-lessee), land tax, landlord's income and property tax (even if accruing during the time of a previous tenant), tithe, rent-charge, &c. The tenant, however, must be careful to deduct or set off these payments against the next rent that becomes due after they are made.

Having thus briefly mentioned how and when rent is to be paid, we will now consider one of the most important heads of this branch of the law, viz., *Distress*.

A distress for rent can only be made when the rent is fixed and certain. If the rent depends upon what shall be considered as reasonable compensation for the use of the premises, a distress cannot be made—the landlord's remedy is by action. So, occupation under an agreement for a lease does not give the right to distrain; but if payment has once been made under such an occupation, the landlord then has the right to distrain, as a tenancy is at once created at a certain rent. A distress may be levied for rent due on furnished apartments, but it must be remembered that, in all cases, not more than six years' arrears of rent are recoverable by this process, unless within the time the tenant has given an acknowledgment of previous rent being due.

A distress may be made at any time within six months after the end of the tenancy, provided the tenant continues in possession, and the landlord's title or interest is still remaining. If the goods of a tenant are removed on or after the day on which the rent falls due, for the purpose of avoiding a distress, the landlord may take them at any time within thirty days after the removal, unless they have been actually sold for value. This proviso, however, neither affects the goods of a stranger nor goods removed before the day on which the rent falls due. If goods have been removed to avoid a distress, the landlord may, with the help of the police, break open in the daytime any place where they have been concealed, having first made oath, if the hiding-place be a dwelling-house, that there are reasonable grounds for supposing that the goods are there concealed.

A distress can only be made in the daytime, between sunrise and sunset; and as rent does not become due until the last minute of the day on which it is payable, of course a distress cannot be made until the day after it is payable. The landlord must not distrain if the tenant tenders the rent; the latter need not offer the costs as well, as these he is not bound to pay.

Care should be taken by the landlord not to distrain for more rent than is due to him, and also to distrain at the same time for what is due. If, however, he has made a mistake as to the value of the goods distrained, and finds that they are not as valuable as he had expected, so that the price obtained for them will only cover a part of the rent due, he may then distrain for the remaining portion. The outer door of the house—except as to goods fraudulently removed to avoid distress—cannot be broken open; but if an entrance has been made into the house without this act of violence, inner doors may be burst. If, however, a landlord, or any person authorised by him, once lawfully enter a house, and begin the distress, but are forcibly ejected, then, for the purpose of completing their work, the outer door may be forced. The landlord or the bailiff may call in a policeman, if violence is offered or threatened by the tenant.

When the seizure has been made, an inventory of as many of the goods as will make up the amount of the debt and of the costs of the distress, must be drawn up. A copy of the inventory is then made with a notice at the foot stating that the distress has been made, that the goods mentioned have been taken, and mentioning the day on which the rent and costs must be paid. This inventory and notice must be served upon the tenant, and if he is not there, must be fixed in a conspicuous place on the premises. A witness should be in attendance to be able to prove that all the proceedings were strictly regular.

The distress having been thus levied, the landlord may then remove the goods to some place he may select for the purpose of "impounding" them—*i.e.*, of securing the goods so distrained. When the goods are "impounded," they are considered to be in the custody of the law, and if the tenant retake them, he is liable both to be indicted for what is called "pound-breach," and to an action at law for damages for three times the value of the goods; and this, although the distress may have been irregular, and no rent may have been due at all.

If the tenant, after he has received notice of the distress, do not pay the amount within five days, together with the costs of the levy or replevy of his goods, the distrainer may cause them to be appraised by two appraisers, and then may sell them in satisfaction for his rent. The surplus, if any, is left in the hands of the officer or constable with whose assistance the appraisement was made, for the use of the owner of the goods.

The five days above-mentioned must be calculated inclusive of the last day and exclusive of the day of the seizure. So if a distress is levied on the 1st of May, the goods cannot be sold until the 7th.

Of course it must be understood that, if the landlord is unwilling to distrain for his rent, he has his remedy by action at law, either in the County Court if the debt be under £50, or, if the debt be greater, in any of the superior courts of law in the City or at Westminster.

The most important point in this branch of our subject is the question—*What may be distrained?*

The general rule is that all goods and personal chattels found on the premises may be distrained. To this, however, there are many exceptions. For instance:—Animals in a wild state; *fixtures*, including tenant's fixtures; goods delivered to a person exercising a trade, to be carried, wrought, worked up, or managed in the way of his trade, viz., a horse sent to a smith's to be shod, clothes sent to a tailor to be repaired, goods in pledge (even after a year from the time of pawning), goods deposited for safe custody in a warehouse or with an auctioneer for sale, or goods of a guest at an inn. Things in actual use are privileged from distress, such as the horse on which a man is riding, the instruments of a man's trade or profession, meat, milk, fruit, and even money, if loose, and not tied up in a bag. By 34 and 35 Vict., c. 79, the goods of a lodger are also privileged under certain conditions.

VENTILATION.—I.

THE best definition that can perhaps be found for this most important branch of economy of life is contained in a few words. Ventilation is the art of providing any confined area or apartment with an adequate supply of air in a condition suitable to the purposes for which it may be required. The air is usually introduced in a stream which maintains a freshness and a purity of atmosphere in the place that is ventilated, any contaminated air being removed as the fresh air enters.

Both science and chemistry have shown us in too many distressing instances, that an impure and vitiated atmosphere is perhaps the greatest breeder of disease amongst us, whether its action is slow but sure, bearing in its train scrofula, consumption, and fever; or whether its approach is rapid and terrible, instances of which we frequently see in coal mines and have heard of in the Black Hole of Calcutta.

Before we give advice and practical directions in

this important art, we will just mention a few facts, which will show how necessary good pure air is to the life of mankind. A man's chest contains nearly two hundred cubic inches of air, but in ordinary breathing he takes in at one time and sends out again only about twenty cubic inches—the bulk of a full-sized orange—and he makes about fifteen inspirations per minute. He vitiates, therefore, in a minute, about the sixth part of a cubic foot, but which, mixing as it escapes with many times as much of the air around, renders unfit for respiration three or four cubic feet. The removal of this impure air, and the supply in its stead of fresh air, is accomplished thus: the air which issues from the chest, being heated to nearly the temperature of the living body—viz., ninety-eight degrees, and being thereby dilated, is lighter bulk for bulk than the surrounding air at any ordinary temperature, and it therefore rises in the atmosphere to be diffused there, as oil set free under water rises; in both cases a lighter fluid is, in fact, pushing up and taking the place of a heavier.

As all gaseous bodies and vapours intimately mix when suffered to remain in contact, we see how important it is that ventilation should be continual, that the noxious gases should be expelled as soon as they are generated, that the ventilation should be from the upper part of the room, and that the fresh air should not enter where it is in any degree liable to mix with that which has risen from the lungs.

In selecting a site for a city, a house, or any establishment where numbers of human beings or animals are likely to be crowded together, too much attention, therefore, cannot be paid to the means of ventilation. An aspect facing the south, a dry gravelly soil, a moderate elevation, securing efficient drainage and freedom of access to air, with protection from offensive currents, and an immunity from local impurities, are the first objects to be attained.

In the open air, it is generally understood, that the temperature is under that of the body; and the air expired from the lungs, and also that in contact with the surface of the body, being expanded by the heat it receives, escapes—from its levity and a fresh stream is immediately supplied; but when the body is confined within a limited space, special arrangements must be made to admit a constant renewal of fresh air.

Of these special arrangements in dwelling-houses, the necessary apparatus is simple and easily obtained. The number of persons occupying the apartments is usually small compared with their size, and the supply of air, although it should be sufficient and constant, can be proportionately reduced. We must remember that air enters when the doors are opened, and through the interstices of the windows. The additional provisions of ventilation depend, in a great measure, upon the mode of heating.

Common open fireplaces draw towards them a large amount of air, much greater than is required for the combustion of the fuel; such chimneys must therefore be considered as great ventilators. Lately, however, fireplaces have been made smaller, and the aperture of the chimney of less size than formerly, so that the escape of heat and bad air by the chimney has been constantly diminishing. An eminent American, Dr. Wyman, has laid down five distinct rules in ventilating dwellings, which we place before our readers:—

1. That each room fifteen feet square, for the accommodation of six or eight individuals, should have a flue for the escape of foul air, either in the chimney or elsewhere, of at least one hundred inches in area. A bedroom should have an outlet of nearly the same dimensions.

2. An inlet for fresh air should be provided for each room and bedroom.

3. That fresh air in winter should always be moderately warmed before it is introduced into apartments.

4. That all apertures for the admission or exit of air should be provided with valves.

5. In summer, nearly all the ventilation will be produced by the opening of doors and windows. It is here supposed that the flues are constructed in the ordinary manner, and receive no warmth from the heat of neighbouring flues; if such warmth is received, the draught will be proportionately increased, and the flues may be diminished.

In sitting-rooms, bedrooms, nurseries, and enclosed places generally, where people assemble, the impure air of the breath, the burnt air from lights, the odour of dishes, &c., because they are heated, and therefore specifically lighter than common air, all ascend first towards the ceiling; but they soon contaminate the whole air of the room down to the mouth of the chimney, through which only a portion of the foul air can pass away. Were even a window to be opened at the top, this would not altogether remove the noxious air, as the cold air would then be admissible to the room. "In this way," remarks Dr. Arnott, "arises great, though unsuspected, injury to the health, and finally to the constitution of the inmates. The pale faces and scrofulous constitutions of the inhabitants of towns are mainly effects of this evil." In order to prevent these calamities, the simplest means by which all noxious air is allowed to pass away, in obedience to the chimney draught, but through which no air or smoke can return, is the "ventilating valve."

This valve is placed in an opening made from the room into the chimney-flue near the ceiling, and is, in itself, a metallic flap to close the opening, balanced by a weight on an arm beyond the hinge. The weight may be screwed on its arm to such a distance from the axis, that it shall exactly counterpoise the flap; but if a little further off it will just preponderate, and keep the flap, when not acted on by entering air, very softly in the closed position. Therefore, although the valve be heavy and durable, a breath of air suffices to move it; which air, if proceeding from the room, opens it, and coming from the chimney, closes it, and when no such force interferes, it shuts. The valve is so adjusted originally, as to settle always in the closed position. An important part of the arrangement is the wire, which descends like a bell-wire from the valve to a screw or peg, fixed in the wall, within reach of the person's hand, by acting on which the valve may be either entirely closed, or left free to open in any desired degree. In cold weather, or when few persons are in the room, the valve, when opened only a little, allows quite as much air to pass as is requisite. A flap, if thirty-six square inches in area, is sufficiently large, where there is a good chimney draught, for a full-sized room with a number of people collected.

If, as is sometimes the case, the opening or throat of the chimney over the fire be so wide, that more air can easily enter there than can escape at the chimney-pot above, the chimney, it stands to reason, will not take air in also at the ventilating valve. It is necessary, then, that with ordinary grates the register-flap should be so far closed, that when the fire is lighted, little more than the true smoke shall be allowed to enter; and not also, as is usual, much of the pure air of the room escape with it to waste.

Again, in an ordinary fireplace there is often a larger space than is necessary left between the fire and the entrance to the chimney, in rising through which the smoke contaminates the pure air, which has then to be allowed to pass away as smoky air. Many instances have happened in which the efficacy of the ventilating valve has been proved. We select one out of many, and this instance is related by Dr. Arnott, one of the greatest authorities on this subject, as having happened under his knowledge.

In a family living in a house near Russell Square, one of the children, aged four years, was observed to have a gland of the neck beginning to swell, and the mother was much pained by hearing that some person had called the affection scrofulous. She was not aware that the foul air of a crowded dwelling is all-sufficient to produce scrofula as well as many other diseases. The medical friend consulted on the occasion had at other times remarked favourably on the healthfulness of the children and the management of the mother. Now, however, within a short time twin children had been added to the family, with another servant, and low grates had been substituted in the sleeping-rooms for the old-fashioned grates with high mantelpieces, which favoured ventilation by allowing escape for hot air from *above* the level of the children's beds. All the children, therefore, during the night were now breathing the impure air which accumulates in the upper part of unventilated bedrooms.

On examining the family, it was found that not only the health of the little patient with the swollen gland, but of the others also, had of late become notably impaired. There could be no doubt that the new state of the atmosphere in the house was the cause of the evils, and this was soon proved. Ventilating valves were introduced. Not more than a month afterwards the medical adviser was called in again, but then only to witness the happy effect of the simple remedy prescribed - for to the new ventilation the mother was attributing all the good obtained. A single fact, however, remained unexplained. The nurse, who had entered the family long before, had for more than a year become so weak, and liable to what she called "a constant weight" on her head, that she was incapable of much active exertion, and was retained in her post chiefly for her trustworthiness and experience. She also now had regained health and activity, but as she had been ill for more than a year, while the children had been well, and she was supposed to have been breathing the same atmosphere as the children, it was concluded that the cause of *her* illness could not be the same as that of theirs. The truth was, however, that the nurse had not always breathed the same atmosphere; for, being taller than the children, and constantly in the nurseries, with her head in the comparatively stagnant air above the level of the chimneys, while the children, until the lowering of the grates, were always in comparatively pure air below that level, she had breathed the impure air much longer than they. The high ventilating valve cleared away the pernicious air from both nurse and children.

The above story is not in the slightest degree exaggerated, and is only one culled from many; it shows clearly what a housewife's duty is with regard to ventilation; even supposing she have no family, then for the sake of her domestics.

Where apartments are warmed by heated air, unless its temperature is much greater than is consistent with purity, the ventilation is sufficient. The register for the admission of air should, however, be differently placed from those in common use. When in the floor, the current is directly upward, diffuses itself very little, and consequently imparts very little heat to persons standing or sitting near. There are other objections. In sweeping the floor, dust frequently falls into the flue; when the register is open, dirt falls from the boots of those warming their feet or walking over it. The diffusion will be increased, and the other objections obviated, by admitting the air horizontally from an opening just above the floor.

A room of this kind, warmed by a hot-air furnace, will require a chimney or other flue by which the air may escape—for no air can enter a room unless an equal quantity depart from it; therefore every room should have a fireplace which will serve as a flue, and, in case of an accident, take the place of the hot air.

ORNAMENTAL TEA-POT COSY AND EGG BASKET.

As a companion to the mat described on page 345, vol. ii., if used for the breakfast-table, we now give the design for a tea-pot cosy, in the button work. The cosy, originally a Scotch fashion, but now almost universally adopted in England, is a useful adjunct to the breakfast-table; for, as it is thickly wadded and made to cover the tea-pot entirely, it not only keeps in the heat while the tea is infusing, but, when made, it prevents the infusion from becoming cold, should the breakfast be a lingering meal, or be detained on account of any member of the family being less of an early riser than the rest. The cosy should be worked on scarlet merino, in the same style as the breakfast mat, and for this purpose any of the borders we gave in our last paper may be chosen. The present one is also appropriate for either, and is worked in the two smallest-sized buttons. In consequence of the dimensions of our publication, the pattern (Fig. 1) is necessarily given in a reduced size; but the actual measurements should be, when completed, 15 inches in width by 10½ inches in height. When the scarlet merino has been cut to about half an inch beyond this size, a piece of white glazed lining, rather shorter at the straight edge, is put under it, and the merino tacked upon it all round, and turned over it at the straight edge. The border is now worked, taking the stitches through to the lining; when it is finished, a small pattern is dotted, as it were, over the rest, as shown in the design. Fig. 2 or Fig. 3 may be used for the latter purpose, if preferred to the design given on the cosy.

Fig. 2.

Fig. 3.

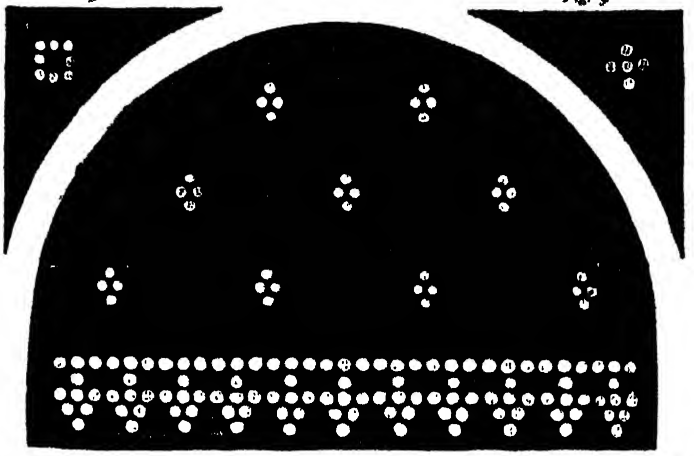


Fig. 1.

Two pieces being worked in the manner described, they must be firmly stitched together round the curved part, on the wrong side, leaving the straight sides open. Now take a sheet of wadding, double it, and cut it to the shape of the cosy; cut to the same size a piece of white silk or sarcenet, tack the wadding down upon it at intervals, and having prepared two of these pieces (putting the skin of the wadding next to the silk), stitch them together; turn them out, and place them inside the merino and glazed

calico as a lining, tacking them here and there, and neatly felling down the silk upon the merino, at the straight edges, on the inside. The cosy will now be complete, with the exception of the handle. For this fold a piece of merino to about half an inch in width, and five in length; sew on it a row of middle-sized buttons close together, and when finished stitch it by the two ends to the top of the cosy, on the edge where it is joined. It should lie upon the top quite flatly, and, being only stitched down at the ends, can be easily raised when wanted to lift the cosy by.

Another ornamental addition to the breakfast-table is a basket for eggs, to occupy the centre of the table. It should be of fine, close, fancy wickerwork, either round, oval, or, indeed, of any pretty shape, and not very deep. It may be either with or without a handle, but is more graceful and convenient for handing round, if possessing one. The basket must be well padded within with wadding or soft cotton wool, not tightly strained, and over this is placed the lining of scarlet flannel, also not very tightly strained. In this basket the eggs are placed, and the wool and flannel serve to retain the heat in them until required for eating; and to ensure their being kept warm, a cover of double flannel, with wool quilted in between, is made of the same shape as the basket, but about half an inch larger, and put over the eggs. On this cover a border may be worked in buttons, and, when thus finished, the *suite*--viz., breakfast mat, cosy, and egg-basket--will give a cheerful and pretty appearance to the table. The designs we have already given will be found suitable for the egg-basket also, which is sometimes worked to match the mat and cosy, unless a variety of pattern be preferred for it.

Although we have spoken of this work as being done in the white china buttons only, many other kinds may be used, according to the taste of the worker. Mother-of-pearl buttons have a beautiful effect, and when sewn on a ground of dark blue or violet velvet, present a very rich appearance. The small mother-of-pearl shells, brought from Italy, may be used in the same way as the buttons, and look extremely handsome.

COOKERY.—XLIX.

RABBITS, HARES, PARTRIDGES, AND WOODCOCKS.

Fricandeau of Rabbit.—Cut off the meat from a fine, large rabbit, lard the pieces, put them into a baking-dish, and cover them with stock; cover with buttered paper, and bake for two hours in a moderate oven, replenishing the stock as it is reduced. When done, dish it upon rich tomato-sauce, and simmer the liquor in which it was baked to a glaze: then pour it over the pieces of rabbit, and serve.

Rabbit Pie.—Cut the meat from two rabbits; cut small a pound of fat bacon; season with pepper, salt, and powdered cloves, and a shred shalot, if liked. Then make a forcemeat of the livers, parboiled and beaten in a mortar, with eight oysters, mace, cayenne pepper, and savoury herbs; make this forcemeat into balls, with egg-yolk, and add to the pieces of rabbit in a baking-dish, round which put a good crust, pour in some stock, cover the whole with thick paste, and bake it for an hour and a half, in a moderate oven. A gill of port wine will improve it.

Raised Rabbit Pie.—Make a raised crust; cut the meat from a fine young rabbit, season it, and add half a pound of fat bacon, the yolk of four hard-boiled eggs, sliced, and tomato-sauce, to colour it. Pack the meat tightly, and bake it gently for an hour and a half. To be eaten cold.

Rabbit Pudding.—Make a light paste of fine flour and beef suet, and season with salt; butter a basin, and line it with the paste, and fill it with pieces of rabbit, seasoned with pepper and spices between, and add a little bacon. Pour in a cupful of gravy or water, cover with a thick crust, tie it over with a cloth, and boil three hours.

Roasted Rabbit and Chestnuts.—Take two dozen large chestnuts, prick each with a penknife, put them in a saucepan of cold water, and boil them for a quarter of an hour, when drain and peel them. Parboil the liver of a rabbit, and cut it up finely; pulp a dozen chestnuts, add chopped sweet herbs, nutmeg, pepper, mace, and salt, and a quarter of a pound of fat bacon, cut small. Mix together, and put this stuffing inside the rabbit; sew it up, and hang it before a moderate fire, basting it with fresh butter. Then prepare a sauce with the chestnut-pulp, rich gravy, a glass of sherry, and a bit of butter rolled in flour; stir it over the fire a quarter of an hour. Take up the rabbit when done, lay it in a dish, and pour the sauce over it; garnish with sliced lemon, and serve it.

Baked Rabbit and Rice.—Prepare a fat tame rabbit, and pepper it, which heightens the flavour; and hang it before the fire to roast, basting it with butter. Meanwhile, put half a pound of rice into a saucepan, with a quart of stock, some mace and nutmeg, and place it over the fire till the rice is tender, when take it off the fire, and stir in half a pound of fresh butter and the yolks of four eggs, well beaten. The rabbit being thus half done, take it from the fire, cut it into joints, and lay them in a deep dish, buttered; add a large spoonful of Bengal chutnee, and then add the rice. Beat the yolks of two eggs, lay them upon the top, bake in a brisk oven for half an hour, and serve it in the baking-dish.

Rabbit Mullagatawny.—Cut the meat from a large Ostend rabbit, trim it into little pieces, and strew over them a little powdered clove. Then make a stock with the other parts of the rabbit, by boiling it in water, and when done, strain it. Next fry the pieces of meat brown, in fresh butter, and then two large onions, cut in slices, and add them to the meat, stirring in curry-powder and fine flour. Put the stock into a stewpan, and stir in the curried ingredients; add salt, and the juice of a lemon. Stew gently for a quarter of an hour, and serve it with rice in a separate dish.—*The Gourmet's Guide to Rabbit-cooking.*

Stewed Rabbit and Rice.—Cut up your rabbit, season it, rub it with chopped tarragon, chervil, and onion, and put it on the fire, with fat bacon cut into small pieces. In about twenty minutes throw in a quarter of a pound of rice, soaked; when the rice is tender, strain it, and dry it on a sieve before the fire; make a wall of rice round the dish, lay in the rabbit, and pour the gravy over it.

To warm Cold Rabbit.—Cut the meat into small pieces; dip them in beaten egg, adding nutmeg, pepper, salt, chopped herbs, and breadcrumbs, and fry the meat in boiling lard. Then flavour half a pint of stock with catchup, add butter rolled in flour; boil it up, and pour it over the fried meat.

Scallop of Rabbit.—Chop up the meat of a cold rabbit, and season it with nutmeg, pepper, and salt, or with lemon-juice and butter. Put the rabbit into a saucepan over the fire for five minutes, and put it into scallop-shells, with breadcrumbs or mashed potatoes; lay on the top bits of butter, and brown in a Dutch oven before a bright fire.

Rabbits en Surprise.—Having stuffed and roasted two rabbits, remove the meat from the bones, chop it fine with shred parsley, lemonpeel, beef marrow, a spoonful of cream and salt, and beat the yolks of hard eggs, with a little butter, in a mortar, and mix the whole together. Stew for five minutes, and with it again cover the bones; brown it with a salamander, pour on some good thick

gravy, and put some myrtle in the mouth of each rabbit. Serve with the livers boiled and frothed.

Rabbits may be roasted in the same way as hares, but is, in truth, only suited for those who are fond of *dry* eating, as also may *young* kid, whole: but kid is best allowed to grow until it is big enough to quarter like lamb. The above may also be baked with advantage, *if* there are the means of constantly basting them. We have recommended *our* veal turkey stuffing for hares, because we prefer it to any other; but to suit other people's tastes we give—

Meg Dods' Stuffing.—Take the grated crumbs of a penny loaf, a quarter of a pound of beef suet, or three ounces of marrow, a small quantity of minced parsley and shalot, a boned anchovy,* a teaspoonful of grated lemonpeel, and the same quantity of nutmeg, salt and pepper to taste, a little cayenne, and the liver parboiled and chopped, if in a sound state—and no liver should be used if unsound. Mix the ingredients with the yolk of an egg, and the crumbs soaked in a very little red wine. Put this into the hare, and sew it closely up. In rural situations, a hare is often stuffed with mashed potatoes, grated ham, suet, and onion, and highly-seasoned with pepper and allspice; nor, though a homely, is this a bad fashion.

Alexandre Dumas' (Sen.) Stuffing, composed for turkey (to avoid spending forty or fifty francs on truffles), is perfectly applicable to hare.—Mince together veal, chicken, and partridge flesh, if you have them; add a quarter of a pound of sausage-meat. Boil in salt and water, with a green celery leaf, fifteen or twenty fine Lyons chestnuts; when tender, crush them and mix them with the mincemeat. Put a clove of garlic [rank heresy] and a bunch of parsley inside your turkey or your hare, and then add your stuffing, filling and sewing it up as tight as possible.

Game.—Under this heading we include not merely the creatures legally protected by the game laws, as hares and pheasants, but all wild animals, feathered or furred, which are objects of the chase, and are eaten afterwards. It is thus that "game" is understood by explorers; including antelopes, cameleopards, bisons, and others, equally inconvenient to carry in a bag. Warren rabbits, therefore, belong to *our* gamebag; and as we hardly know what else to do with their tame relations, we must make *their* flag cover the doubtful merchandise. In fact, this animal's varied usefulness ought to forbid our drawing the line too closely; it fills our stomachs and makes our hats. Besides which, wild, under every latitude, the rabbit and the goat are the most effectual agents given by Providence for enabling man to derive some profit from the barren rock.

Hashed Hare is prepared in the same way as hashed mutton. A few olives may be introduced with advantage. Garnish with the cold forcemeat toasted, or with fresh forcemeat balls roasted before the fire.

Ovened Hare.—Instead of hashing hare, you may present it warmed up in the following form:—Cut up the meat of a cold roast hare into strips, as near as may be of the length and size of your little finger, rejecting all the bones. Take a good quantity of button mushrooms; if fresh, halve and stew them slightly; if preserved or pickled, simply halve them. Cut some breast of white bacon into small dice; brown them in butter in a frying-pan. Put them at the bottom of a dish that stands the fire; dust them with breadcrumbs or biscuit raspings (which latter you can often buy at the baker's); on this place the pieces of hare duly seasoned with pepper and salt; cover them with the mushroom buttons, and, if they are not pickled, add a dash of vinegar; cover all with more breadcrumbs and rasped biscuit; moisten with enough warm broth (putting it on by spoonfuls) to keep the whole from becoming dry; distribute small bits of butter over the surface; set into the oven, and serve when hot through and nicely browned on the top. If mushrooms are not to be had, supply their place with mashed potatoes, and add catchup to the broth with which you moisten the hare.

Hunter's Hash.—This hash is made with cold roast game of any kind; it may even contain several kinds, winged or furred, provided they are cut up and trimmed into shapely pieces. Season the pieces slightly with pepper and salt, roll them in as much flour as will stick to them, and set them aside. Boil down the trimmings, the bones crushed, and any gravy left, with water, till you get a strong game broth from a quarter to half a pint in quantity. Into a stewpan put as much butter as will make three dessertspoonfuls when oiled; add half a tumbler of red French wine, the juice of a lemon, half the peel, and the broth you have obtained from the bones. Stir these together; when they begin to warm, put in your seasoned and floured pieces of game; shake them about and turn them over; give them time to get heated thoroughly, *but never let them come to a boil.* Take them out with a spoon; arrange them on a dish, whose edges you will garnish with buttered toast cut into triangles. While this is doing, let the sauce *boil* up and reduce a little; pour it over the hash, and serve.

N.B. The garnish may be anchovy toast.

Harricoed Hare.—For this, as for a *civet*, French cooks would use only the fore-quarters of the hare, reserving the hind-quarters (the loins and legs) for a roast. Cut your hare, or the front half of it, in pieces; toss them in butter in a stewpan; then put them into a larger stewpan. Cut turnips and white bacon into large dice; give them a turn over the fire in the same butter; dust them with a *little* sugar; put them to the hare with a bunch of sweet herbs, pepper, and salt. In the first stewpan, brown a little flour in the butter remaining with two or three sliced onions; stir in some broth or water; when it has boiled a couple of minutes, pour it over the hare and turnips. Add more broth or water, if need be, and stew gently until done enough. Add a dash of vinegar; arrange the meat on your dish; boil up the sauce to reduce it a little; and serve garnished with buttered toast cut into triangles.

Stewed Hare or Beef.—After skinning and emptying your hare (reserving the blood), weigh it and cut it up into joints. Take a piece of unsmoked bacon, with its skin, weighing the fifth part of the hare. Pare off the skin; cut half the bacon into thin slices, and half into dice. Lay the skin of the bacon at the bottom of an earthen pot on one or two slices of the bacon; then the joints of hare, intermingled with a sliced carrot, the slices and dice of bacon, pepper, salt, two or three cloves, and a tumbler of ordinary French wine; put a piece of oiled paper over the top of the pot, and over that close down the lid. If you have a wood fire, set it on the hearth and pile the hot ashes round it; if not, set it on a part of your stove where it will not stew too fast. When half done, add the blood, and stir it well amongst the joints of hare. It will take three or four hours to cook, because the slower it is done the better. When you have no hare, substitute for it pieces of the rump of beef, with a calf's foot cut in quarters, adding to the wine sufficient broth to keep the meat in the pot constantly covered.

Jugged Hare (from a reliable authority).—This dish, though old-fashioned, ought never to be let go out of fashion. It is an excellent way of employing an old hare, is very light and digestible when done, and is convenient

* We do not like anchovy to meat-dishes ourselves, but tolerate it as a relish admired by some contemporary authorities. In *our* opinion, all depends on the discretion with which anchovy is used. When the quantity is so small that its presence is not suspected, it often produces an excellent effect; for instance, in hare and other high-flavoured brown soups.

on account of being just as good warmed up as at its first serving. Cut up your hare into joints and half-joints, as for a stew. Procure a pound of rump-steak, with its fair proportion of fat; cut it into pieces not more than an inch and a half square. Mix them with the cut-up hare, and season all with pepper and salt. Take a tall, upright earthen jug, pot, or jar, with a cover fitting to the top: take care that its inside is well rinsed, and free from all dust or mouldy smell. At the bottom put a few of the fattest pieces of beef, and over those some of the hare; then fill the jug with the rest, mixing with them, at pretty equal distances, the peel of half a lemon, six or eight whole onions, a teaspoonful of peppercorns, two or three blades of mace, half a dozen cloves, and a few sprigs of thyme and parsley; a couple of bay-leaves also, if approved. Throw in a tablespoonful of catchup and a breakfastcupful of water (in default of good beef or veal stock, which would be better), and put on the cover of the jug. Then set it in a large boiler or small copper of hot water, of such a depth that it (the water) shall not reach the top of the jug nor enter it. Let the jug boil in this way (replacing the water in the boiler as it flies off in steam) for four, five, or six hours, till the hare is tender. It takes long cooking, for, in fact, the hare is really stewed in a *bain-marie*, or hot-water bath. Serve in its own juice (which should be clear and thin; no kind of thickening is to be added), and garnish round with forcemeat balls.

Civet de Lièvre (*Stew of Hare*).—Do not skin and empty your hare until shortly before you are going to cook it, but let it be fresh; which is easily managed, because the civet is as good warmed up as at the first serving. Half a hare (the fore part) will do, but a whole one is better, as the best pieces belong to the back and legs. Save the blood and the liver of the hare; the heart will go with the meat, which must be cut up into pieces of a size to help with a spoon. Put a quarter of a pound of butter into a stewpan; in it brown some white bacon cut into dice, and then take them out: do the same with the pieces of hare and some whole small onions. Stir in a tablespoonful of flour; when brown, dilute with enough red wine to cover all. Return the bacon, hare, and onions to the stewpan, with a bunch of sweet herbs, bay-leaf, pepper, and salt. When nearly cooked enough, stir in the blood of the hare, and the liver chopped small, to thicken the stew. To spare the wine, it may be eked out with broth, but enough to give flavour is indispensable. You are allowed to stew with the hare mushrooms (full-grown or buttons), artichoke bottoms (dried), and slices of parsnip. Olives too may be admitted. It is correct, although incongruous, to garnish with fresh-water cray-fish, as well as with fried or toasted bread.

Civet de Chevreuil (*Stewed Venison*).—The chevreuil, or roe-deer, is with us a rarity, and is so pretty a creature that we always pity it when we see it hanging up in a game-dealer's shop. As venison, it is inferior to fallow deer, and of that the inferior joints may occasionally be had at a reasonable rate. In default of venison, you may safely employ the same parts of well-hung mutton, four-year-old, when to be had. Cut up the breast and neck into small pieces. Cut some breast of white bacon into dice; brown them and a few small onions in butter; as soon as they are coloured, take them out of the pan. In the same butter brown some flour, and put to it the pieces of venison or mutton. When they are about half done, moisten with two-thirds of red wine and one-third of good broth. Add the bacon and onions, and season with pepper and salt, a bunch of sweet herbs, half a teaspoonful of essence of anchovy, and a clove of garlic, if permitted. Shake the stewpan now and then, to prevent sticking and burning. If you have button mushrooms, they will be a nice addition. When done, arrange the venison on a dish; pour the gravy over it, after removing the fat; and serve garnished with fried or toasted bread.

Roast Pheasant.—Old birds are known by their size, weight, the decided markings of their plumage, and the coarseness of their feet and legs. They are best stewed and curried, but *are* roasted stuffed with beef-steak. Even young birds should be kept, to develop their flavour. Pheasants, like turkeys, may be roasted quite plain, or stuffed either with economical turkey stuffing, or extravagantly with the flesh of other pheasants, of snipes and woodcocks, or with truffles. No sauce but their own gravy is usual abroad, but salad is at hand (especially watercress) to be eaten with them; at English tables bread sauce is offered. A brisk fire, a slight dredging with flour, and frequent basting with the best of butter, are essential to the production of a nice roast pheasant.

Roast Partridges are not stuffed here, although on the Continent they sometimes truffle them. Constant basting is requisite to keep them from drying. Roast partridges are occasionally served on a toast impregnated with their gravy. Bread sauce goes with them. Of all boiled game (not excepting the rabbit) boiled partridge is the best; middle-aged birds thus become very acceptable to invalids or at a supper. They may either be smothered with onions, or mashed with parsley and butter and accompanied by onion sauce.

Woodcock and Snipe are exceptions to the general rule of dressing creatures used as food; after plucking and singeing, and skinning their heads, they are *not* emptied, but are roasted with *everything* in them, as they fell to the gun.—Butter a round of toast, put it in the latchpan, and suspend the birds immediately over it, so that the *trail*, and whatever falls from them, is caught by it. Baste with butter. They require a brisk fire, and should not be over-done. Lay them on the toast, and serve without any accompaniment. Like the cruciferous plant which grows in our hedges, they might bear the name of "Sauce Alone." Nevertheless, there may be a lemon. The carver will distribute to each guest one whole snipe or half a woodcock (the thigh is the tid-bit) with his share of the luscious and savoury toast.

Snipe or Woodcock and Beef-steak Pudding boiled is excellent; larks, thrushes, and the like, as well as the smaller wildfowl, may be satisfactorily disposed of in the same way. In the truffle-producing districts of France, partridges, snipes, and woodcocks, are combined with them into pâtés, which find their way, as articles of commerce, into every capital of Europe. Considerable sums are annually produced by this branch of manufacture.

Snipes with Truffles.—Truss eight snipes by passing their beaks through them, and roast them with bread beneath. When they are done take a few truffles well stewed in brown sauce, and put one or two into each bird. Serve on toast with the remainder of the sauce poured over them.

Mr. Galton advises that, when rank birds are shot, they should be *skinned*, not plucked; for much of the rankness lies in their skin; or, if unskinned, they should be buried for some hours, because earth absorbs the oil that makes them rank. Their breast and wings are the least objectionable parts, and, if there is abundance of food, should alone be cooked. Rank sea-birds, when caught, put in a coop, and fed with corn, were found by Captain Bligh to become fat and well tasted.

In the Roman markets we have seen otters exposed for sale. Their flesh looks anything but inviting, but is used because the Roman Church allows it (as well as the dark-fleshed divers and other water-birds, which live exclusively on fish) to be eaten on meagre or abstinence days. The best way of cooking them for such occasions is to convert them into a civet (omitting the bacon) or to dress them like a matelote of fish.

HOUSEHOLD PESTS.—I.

MICE.

The Common Mouse (*Mus musculus*).—This destructive little animal has been described as possessing "mild and gentle manners," and as being "exceedingly timid;" but this description will be better appreciated by the over-sensitive philozoical mind of the naturalist than by that of the household economist. It is the purpose of our present paper to guide our readers to the safest and best means for preventing the offensive presence and destructive ravages of the mouse in the cupboard, the larder, and the dairy; to help the farmer to escape its ruinous career in the granary, the barn, and the corn-stack; and last, but not least, to save from its merciless ravages precious valuables in the form of family papers, parchments, and books, besides all articles of dress, in the manufacture or embellishment of which wax, paste, or starch has been used; for this destructive animal nibbles and destroys all kinds of stuffs and paper wherever it pitches its habitation. A description of the house mouse is perhaps unnecessary, as most persons are only too familiar with its appearance (see cut). By some it has been stated that there are several species of this mouse, but it is better agreed that the difference of size and colour of the house mouse depends only on a variety of the same species.

HOUSE MICE.

Many and divers plans have been devised and adopted for the destruction of this pest, and we shall proceed to notice such of them as we consider either effective or desirable, premising that some are best suited to one place or circumstance, and some to another; while several may sometimes be used together with considerable advantage.

Destruction of Mice in the House.—Prevention, in this as in so many other cases, is better than cure; it is therefore desirable, as far as possible, to adopt such measures as are likely to keep mice and other vermin from the house and, at any rate, not to attract them. See, then, that crusts, bones, cheese-rinds, bags of sago, flour, oatmeal, and rice, grown dusty and laid by on some shelf or other, as also candle-ends and soap, are not left about in the back-kitchen or scullery, or thrown into the ash-bin. The habit commonly practised by servants of laying by kitchen stuff and bones in a cellar or outhouse, with the view of taking them out on some convenient occasion for sale to the general-dealer, should be carefully guarded against. Another custom of keeping potatoes stored up in a cellar and not clearing away the refuse in the spring, also greatly encourages not only mice but other sorts of vermin. It is not so much the loaves of bread and joints of meat carefully preserved in the larder, or safe, which bring besiegers to a house in the shape of these pests, but rather the customary and seemingly harmless accumulations we have described. The dust-bin is the proper place for such things; but it should be emptied more frequently than it usually is, and this plan is moreover useful in other respects, for it keeps the premises fresh and wholesome, a point of real importance, which is too commonly disregarded, even in very fashionable neighbourhoods. If the bones, fat, and waste must be kept for sale they should be parted with pretty frequently.

A cat which is not pampered and nursed upon the lap, but allowed to fulfil its proper mission in the pursuit of prey, is the first preventative, of course; although it is sometimes found that cats break and devour so extensively that they are even more costly to keep than the mice they are kept to destroy. There are also sometimes other objections to cats, such as their frequent dishonesty, their introducing fleas into the house, their tendency to scratch the children, their routing up beds of choice flowers, seeds, &c., and, lastly, their being natural enemies of our pet birds. A preventative sometimes devised against mice is - immediately upon entering into possession of a domicile—to have all the vacant spaces behind skirting-boards and wainscots (the invariable habitation of mice) filled up with plaster. These methods, however, we conceive to be totally impracticable, as no one would pull a house about, at considerable cost, while other means more simple and less expensive could be adopted. There is, however, a precaution which avails much in keeping away both mice and rats, and this is by supplying and keeping in repair gratings and traps to all the drains. Such precaution is, of course, commonly adopted, otherwise every house would be infested. These animals generally find their way into a house by reason of having strayed from their course while young, or having left their homes for want of food. They breed very fast. Aristotle asserted that one hundred and twenty were produced after a very short time by a pregnant mouse shut up alone, but provided with plenty of food. Mice breed at all seasons and

produce five or six at a birth, and the young are in a condition to provide for themselves when only a fortnight old. They do not wander like the rat from house to house, but travel within easy reach of their holes, only coming forth for the sake of food and water, although they consume the latter very sparingly. On this account it is necessary to exterminate them by every means possible as soon as they make their appearance, there being no chance of their quitting, like the rat, of their own accord. We shall, therefore, consider a further method for getting rid of these pests—namely, by means of traps and snares. Of traps the most usual are those sold at general oilshops for a penny or twopence; they are very easy to set, and we have found them useful, but it is desirable that these traps should be periodically replaced, or a means provided for taking off the smell of the former captives, otherwise old mice will foresee danger and seldom be captured with sufficient rapidity to diminish the race, owing to its great fecundity. For those who are willing to go to the expense of half-a-crown, Mr. Colin Pullinger has invented an excellent mouse-trap, sold under the title of "Perpetual Mousetrap—registered."

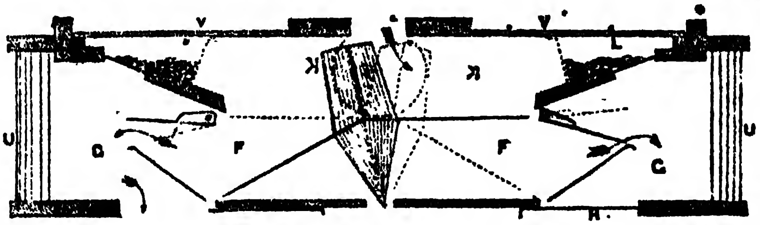


Fig. 1.

This ingeniously contrived trap is worthy the notice of all who are plagued by any number of the pests. The trap is so contrived that each mouse as it enters sets it for the next, so that be a house ever so infested there is little doubt but Mr. Pullinger's masterly trap will readily free it. The trap being thus constructed never requires setting, and is always ready for catching mice, as the bait will last for months; therefore the only attention required is to free the trap from the mice which are caught. This may be done by dropping them into a pan of water; but if they are allowed to remain in the trap for a few hours they will generally be found dead, it being supposed that they die through fright. The extreme simplicity of the action of this trap renders it almost impossible for it to get out of order. We give diagrams with the latest improvements. Fig. 1 is a view of the interior of the trap. The bridge placed in the centre works on a wire hinge, as on a pivot, and is the means by which one mouse entering sets it for the next. In the representation, the trap is shown open, or, as may otherwise be termed set, on the side on which the arrow is drawn representing the entrance of a mouse and its passage towards K in the direction of the bait, which is situated under a glass slide, represented at V. The mouse makes its way towards the light and air shown by the wire bars at U, and in so doing raises a grating situated at F, and enters the compartment G, as shown by the arrows, where it is imprisoned. H represents a tin slide at the bottom of the trap, which may be opened as shown on the other side of the figure; the arrow pointing to the manner in which the mouse is extricated from the trap. By means of pulling out the tin slides, the trap may be periodically freed from dirt in the inside. Fig. 2 represents the bottom of the trap. A is the tin slide closed, which slides towards the middle of the trap, as shown on the other side of the figure, where B represents the corresponding slide drawn, which leaves the trap open at C. For catching mice the trap should be placed in a level but concealed position, as mice having so many enemies, seldom venture into an open space. When out of use, it is advisable that the trap should be left unbaited, since being such a ready catcher a mouse might remain in the trap unnoticed and occasion a bad smell.

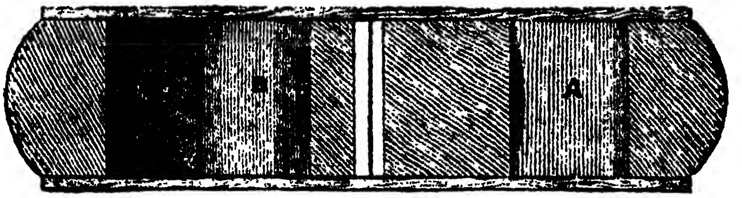


Fig. 2.

The Prize Automaton Mousetrap, which may be termed an excelsior, devised by the same clever inventor, is also worth notice.

A plan we have adopted with great success for the capture of mice is to set a snare by means of a steep-sided washhand basin, with a teacupful or less of water at the bottom, accompanied by a scrap of cheese, placing some screwed-up paper, pieces of carpet, or anything else carelessly beside it, to serve as a ladder for the mice; they will drop into the basin, smelling the water or baited by the cheese, and in the morning all that entered will be found dead, killed by the cold of the water, and by having exhausted themselves with fruitless attempts to escape. A plan, too, we adopted when a boy, with unvaried success, in our mother's larder, which had no available outlet excepting the door, was to let any little forager that liked enter that retreat for dainties, and so soon as its presence was ascertained by our hearing a rustling amongst scattered bags and papers placed for the purpose, we entered the cupboard and, when entered, caused a slip of carpet to be placed tightly outside, at the bottom of the door. Then commencing our hunt, within a few minutes the forager was sure to be captured, whom we immediately dispatched by crushing his head with our boot. This plan can only be adopted in a close cupboard, without many outlets, but, when possible, surpasses all others in certainty and expedition, the utmost hurt to the hand being sometimes a bite with a little tooth, which may draw a drop of blood, but will never harm—the bite of the mouse, unlike that of the rat, being perfectly harmless. For the capture of mice in this manner, the trousers should be tied round the legs at the bottom, as both mice and rats are apt to run up the trouser legs for the sake of hiding themselves.

With regard to poisoning by means of arsenic, which we find is still recommended by naturalists, we would specially warn our readers. The remedy is worse than the disease. No one who has not had experience could ever imagine the unbearable smell produced by one little dead animal, and the smell will continue an almost interminable time when death has taken place either behind the skirting or between the ceiling and the floor. Arsenic and poisons do not generally produce sudden death, and the consequence is that mice retire to their holes to die. This, nevertheless, is not the only, nor yet the greatest objection to poisons. Poultry and domestic animals, not to mention children, have with sad frequency been poisoned through this means of destroying mice being used injudiciously and without care. But as it has

been found necessary, in some instances, to resort to the use of poisons for the extermination of mice as well as rats, we shall (while not recommending the use of them, if avoidable) give some directions.

Poisoned wheat, sold by all chemists, is amongst the safest kind of poisons where poultry is not kept, as children and domestic animals are less likely to touch it. Phosphoric paste is another convenient form of poison; it is sometimes prepared so as to be rubbed on bread, or mixed with meal or bran, and sometimes in the form of pellets to be put into the holes, just as it comes from the chemist. Phosphoric paste produces intense thirst; it is therefore well to leave water near it, but away from the holes, as, should the mice either remain, or return from their holes, to drink, they may probably die while drinking, and thus the carcase be saved incarceration in the walls. The following compound has been recommended by a well-known authority on this subject:—Mix two ounces of flour, one ounce of nux vomica, half an ounce of sugar, and the same quantity of butter into a paste, with water, and bake it briskly. Let it be placed in the runs of the mice while fresh, other food being removed, and the mice will be exterminated for a long period. In places where mice abound, and more simple means, such as we have described, prove insufficient, the following likewise may be adopted with success:—Mix up oatmeal or flour into a thick paste, with oil of amber and ox-gall in equal parts; make it into little balls, and lay them in the middle of the infested apartment, surrounding them with shallow vessels filled with water. This preparation occasions intolerable thirst, and the mice will frequently drink till they die on the spot.

ODDS AND ENDS.

To remove Smoke Stains from Marble Mantelpieces.—We have already given directions for this purpose, and we add another method because, from recent experience, we believe it to be the best way of effecting this, without doing any injury to the polish of the marble. Apply benzole to the stains, and then carefully rub them off by means of a very clean soft piece of rag. If the stains should not be removed at the first application, it must be done again and again until all the marks are removed.

To prepare Pumice Paper for Crayon Drawings.—Pumice paper may be prepared by brushing over the paper with starch or gelatine, and then covering over the surface with very fine pumicestone powder; the surface of the powder, when dry, being then rubbed over with white paper to render it as level and smooth as possible.

How to ascertain the purity of Salad Oil.—Olive oil, commonly known under the name of salad oil, in consequence of its being used in that preparation, is sometimes adulterated with other oils; the oil most commonly employed being that obtained from poppy seeds. This is selected in consequence of its cheapness, and being comparatively free from taste and smell. One of the methods employed to detect the purity of olive oil is, to shake it up violently, and noticing the rapidity with which the bubbles disappear. Another way is to apply a gentle degree of heat to the oil, which will then exhale the smell of the plant from which it was procured. Ammonia is also employed for the same purpose. One-tenth of this liquid, when it is shaken up with pure olive oil, will instantly convert it into a thick, viscid, milk-white soap. But if poppy oil is present, it forms a mass more or less granular, according to the quantity of that oil present.

To restore the colour of faded Black Ink.—The colour of writing done with black ink as usually prepared—on paper in the preparation of which too much chlorine has been used to bleach the rags—is very apt to turn colour, and sometimes almost disappear. In such cases the writing may be restored, either by dipping it into water containing the sulphuret of ammonia, or by exposing it to the vapour of that substance. Another way to restore the writing is to put it into a weak solution of prussiate of potash, and then, while wet, a very dilute solution of sulphuric acid is applied, when the writing immediately reappears.

Why good Stockings are marked with Coloured Lines.—Every one has probably noticed that all good stockings are marked at the top with coloured lines, the threads of which the lines are formed being dyed either blue or red. The dyes are not what are called "fast" colours, but are "fugitive." The reason for the lines being placed there by the manufacturer, was to show that the texture of the material of which the stockings were made was not injured when the articles were bleached, the bleaching being effected by the action of chlorine. Although this chlorine when carefully used, and when proper care is taken that the goods are not exposed too long to its influence, is comparatively harmless, still, if employed in excess, it so destroys the texture of the stockings, that they quickly come into holes; hence the adoption of these coloured lines, as before the chlorine can injure the material to this extent, the red or blue colour of these lines will be removed. For this cause, any stockings which do not show these colours, are always sold at a lower price; but, however low the prices at which they are sold, for the reason mentioned, they are not cheap, nor is it advisable to purchase them.

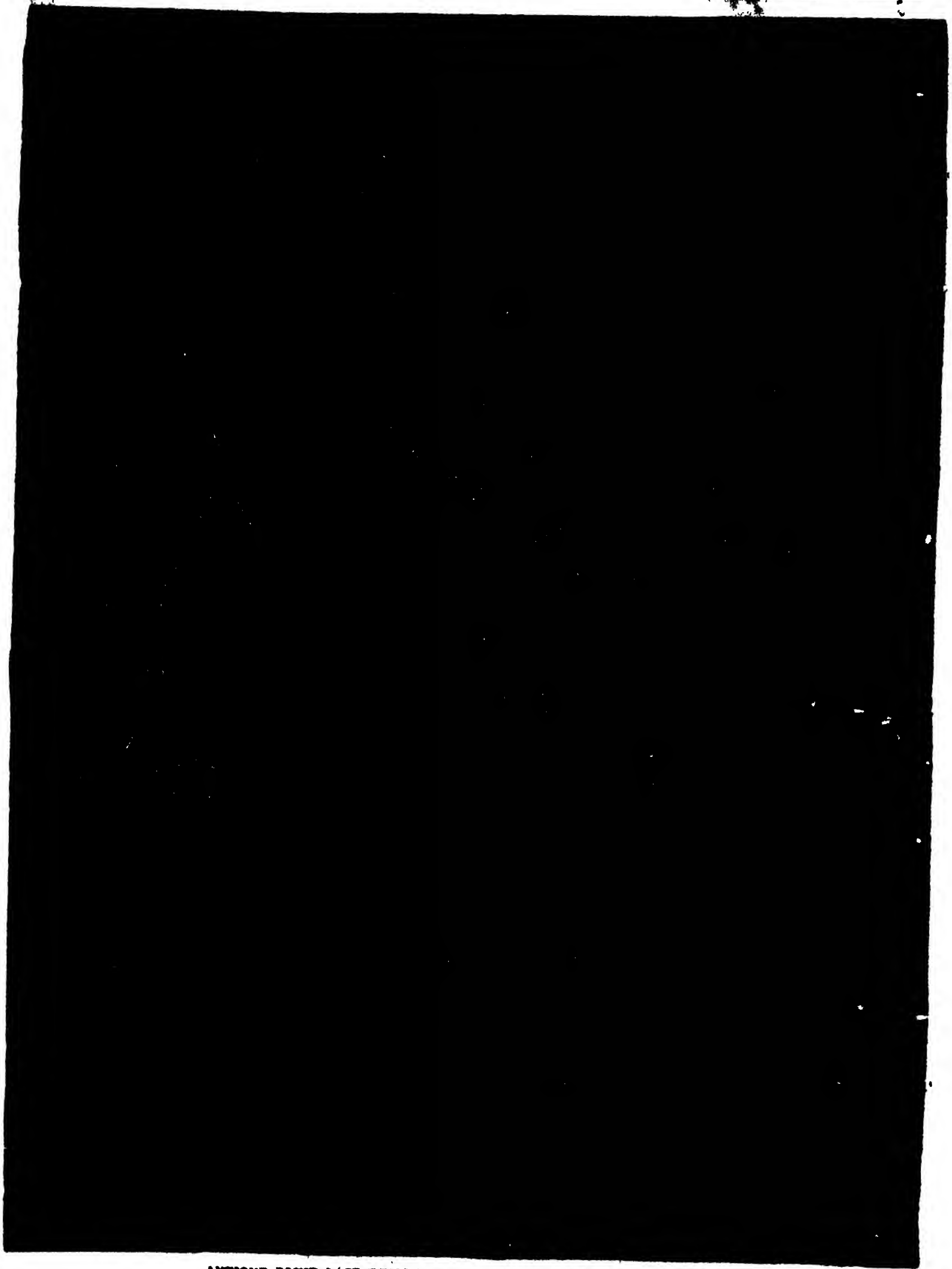
To clean Coloured Marble.—Mix together a gill of soapsuds, a gill of ox-gall, and half a gill of turpentine. Mix these together with as much finely-powdered pipeclay or fuller's earth as will form a rather stiffish paste. Apply with a brush, using a small brush to get into the flutings or fine work. Allow this to remain on the marble for two or three days; wipe it off, and should it not be sufficiently cleaned by a first application, repeat the operation two or three times. Oil of vitriol, or lemon-juice, applied to stains in marble, will remove them after rubbing the places with a soft cloth for twenty minutes.

To mend Broken Dishes.—If you have any plates and dishes merely cracked in halves, and not shattered, get from a house painter a little white paint, which lay on the bottom of the dish with a small brush. Cut a piece of tape the length of the crack; lay it down, and cover one side with paint, which lay also over the crack. Press down the tape, and see that it is perfectly smooth. Do not let the dish be used for two or three weeks, after which it will be found to be perfectly cemented, and will never break in the same place again.

To take Ink Stains out of Paint.—Wash the spot with a cloth dipped in oxalic acid. In a few minutes wipe it off with a clean towel and cold water, and the spot will have disappeared.

To clean Alabaster Ornaments.—Add to two ounces of aquafortis a pint of cold filtered water. Have ready some brushes of various sizes, dip them in the mixture, and touch all the parts with this mixture, using very small brushes for minute ornaments. After this rinse with clear cold water, and set it in the sun to dry for a few hours. Never use soap to the alabaster, as it would discolour and spoil it. If the ornaments are not kept under a shade, they will require being done about twice a year with the above solution

White Marble.—That which is used for ornaments and carved mantelpieces is generally the finest, and should never be cleaned with soap and water, as it injures it very much; but if rubbed every day with a silk handkerchief or soft cloth, this will be found all that is required. Grease stains may be removed from marble by applying a little magnesia, finely powdered, or salt of tartar. Allow it to remain on the spot a few hours; then wipe it, and apply again, if the spot has not disappeared entirely.



ANTIQUE POINT LACE DESIGN FOR POCKET HANDKERCHIEF BORDER

POINT LACE WORK.—IX.

THE subject of our illustration in the present number, is a very beautiful design from antique point lace for the border of a handkerchief. The corner is given, and the upper portion represents half one side. Trace it on the transparent cloth in ink, marking out the centre square and fitting the join nicely, so that the braid can be put on in a single piece. Very fine braid, with an open edge is used. Very neatly sew every part of the braid together wherever it crosses. Make the stitches firm, so that the braid may not come apart in wear, and finish off each securely. Then run the thread, which must be fine, not to show, along the centre of the braid to the next join. Tack it on, covering the whole of the design. Then work the bars, crossing each twice, and button-holing over the crossing with neat fine stitches.

Run the cotton along the braid in a manner not to show, from bar to bar, wherever a space occurs.

When the handkerchief is removed from the pattern, sew a pearl Brussels edge all round the extremity of the outside braid.

COCOA.

COCOA (as also chocolate, which is only a distinguishing name for certain preparations of the same thing) is made from the seeds of the *Cacao theobroma*, a tree which grows in South and Central America and the West Indies; and of which the Trinidad, the Guayaquil, and Bahia varieties are best known to commerce. The *Cacao theobroma* somewhat resembles the apple-tree in its appearance, and grows from eighteen to twenty feet in height. It requires shelter from the rays of the sun, and for this reason banana and other trees are first planted on the land which is afterwards to be converted into a cacao plantation. The leaves are of a dull green, smooth, but without gloss, and about six inches long. The blossoms are at first white, but afterwards they assume a reddish tinge, and these are succeeded by fruits which somewhat resemble cucumbers (see cut), within each of which from twenty to thirty of the cocoa seeds are arranged in five regular rows and surrounded by a spongy rose-coloured substance like that of the water-melon. The tree begins to bear about its fourth year, and increases in fecundity till it reaches the ninth or tenth; it continues bearing about fifty years. The fruit when ripe changes from green to yellow, and is then gathered and opened and the seeds taken out. These are about the size of large almonds, but more irregular in shape; they are spread to dry, or, in some districts (as in the Caracas), are first subjected to a slight fermentation to deprive them of their bitterness. When dried the berries are sent to market, but before they are fit for domestic use they have to be further prepared in various ways, and are then known to the consumer by different names.

COCOA FRUIT.

Chocolate is made by grinding the seeds, after roasting them to bring out their taste and aroma, with sugar and some flavouring matter, such as vanilla, and pouring the paste into moulds.

Cocoa-nibs consist of the roasted beans merely broken into pieces.

Flake or *Rock Cocoas* are formed by crushing the seeds between hot rollers, and mixing with them sugar and a little farinaceous matter, and afterwards drying the paste in flakes or masses.

The *Soluble Cocoas*, sold as a powder, in packets or otherwise, under a variety of long and fanciful names, are, or should be, the same in composition as the rock cocoa, and merely reduced to a powder so as to be used more easily. Some manufacturers also profess to render some of their prepared cocoas more suited to weak digestions by depriving them of a part of their oil. The sugar is added to the prepared cocoas for the purpose of rendering them more readily soluble, and the starch to give them a thickening quality, and also, to some extent, to counteract the fatty nature of the nut.

Adulterations.—Cocoa is an article easily adulterated in its prepared forms, but fortunately the methods practised for its adulteration are not so prejudicial to health as some of those in use with tea. The consumer of the higher-priced cocoas suffers chiefly in receiving too large a proportion of starch and sugar in his prepared packet. The cheaper varieties, however, contain much which is not attractive to a fastidious palate, however harmless it may be. Dr. Normandy tells us, that they frequently "consist of bad or musty cocoa-nuts, with their shells, coarse sugar of the lowest quality, ground with potato starch, old sea biscuits, coarse branny flour, animal fat (generally tallow or even greaves);" and that he has known chocolate "in which brickdust or red ochre had been introduced to the extent of twelve per cent. Another sample contained twenty-two per cent. of peroxide of iron, the rest being starch, cocoa-nuts, with their shells, and tallow." It appears also that the separated husks of the cocoa-beans are imported into this country to some extent, under the name of "miserable," to be ground down into cheap cocoas. Colouring matter is introduced, especially in chocolates. Some of the best and highest-priced foreign chocolates are coloured with annatto, but this is harmless when pure. In England, ferruginous earths, such as ochre, are used, but these would do little positive harm in small quantities. It has been stated, however, that in some samples red-lead and cinnabar have been found by foreign chemists, but we have reason to hope that such poisons are never employed by the English makers. On the whole it would appear, that when the consumer buys at a reasonable price, such as, say one shilling per pound, the prepared cocoa of a respectable manufacturer, there is every probability that he will receive a nourishing and wholesome article fairly representing the full value of his money.

Of the great value of cocoa as a nourishing article of food there have never been two opinions. A very little of the nut is found to be sufficient to support life. Cocoa

like tea and coffee, contains an essential principle which is called *theobromine*, and which is similar to the theine and caffeine contained in those articles. Theobromine is even more highly nitrogenised than theine or caffeine, and may, therefore, be considered as still more active and valuable. From the following analysis some idea of the composition of cocoa may be gathered; it is, however, to be observed that cocoas from different countries vary considerably in their constituents:—

Theobromine	1.20
Cacao Red	3.50
Cacao Butter	49.00
Gluten	15.00
Starch	16.00
Sugar	0.60
Cellulose	5.60
Ash	3.50
Moisture	5.60
	100.00

From this it will be seen that in addition to the valuable peculiar principle of which we have spoken, cocoa contains a large proportion (64 per cent.) of highly nutritious matter, in the form of fat and gluten. The former, the cacao butter, is too difficult of digestion to be fitted to all stomachs; and in *broma*, a preparation of cocoa much in favour some years since for invalids, the oil was removed; and many medical authorities speak favourably of the system adopted by most of the makers of prepared cocoas at the present day, in mixing with the seeds a considerable proportion of starch as beneficial, since the latter tends to neutralise the effects of the oil. It is said that the alternate use of cocoa and coffee is good to restore those to health who are suffering from having indulged in excesses.

The superiority of the best Continental cocoas and chocolates over our own is mainly due to the fact that the higher rate of duty upon foreign, as compared with colonial, berries, keeps the best samples from our markets. The finer varieties go to France and Spain, while our manufacturers are supplied with the inferior West Indian beans. Good chocolate or cocoa is to be distinguished by its being oily and also by its melting readily in the mouth, and by its leaving no grit or sediment. Unlike coffee, cocoa deteriorates with age, and to be in perfection it should always be new.

THE HOUSEHOLD MECHANIC.—XXXV.

HOW TO PUT ON A LOCK.

On page 213 of our first volume the construction of the various locks in common use was fully described. In this paper we propose showing how they may be fastened on doors or boxes when needed. As this is a work which the household mechanic will frequently be called upon to perform, we will commence with the ordinary "rim lock," such as is generally used upon room doors.

These locks may be procured at any ironmonger's, and vary in price according to their quality—from eighteenpence to four or five shillings each. They are made in pairs, right and left handed, so as to suit doors which are hung on either side. The hand of a lock is determined from the inside: thus, the inner part being placed next the workman, and right side up, of course, if the bolts shoot to the right, it is called right-handed, and *vice versâ*. In order to determine which hand is required for the door to be fitted, the workman should stand outside the room, or, so that the door opens from him. If the hinges are on his right hand, a left-handed lock will be required; while, if on the left, of course the lock should be right-handed. It is not absolutely necessary, however, that locks of the proper hand should be used, as those of the ordinary form may be placed bottom upwards upon the door; but it is more convenient to have them in their proper positions.

It will be observed that the ordinary rim lock is provided with an overlapping ear, or flange of iron, which is sometimes perforated with screwholes, and is intended to be let into the edge of the door. The first thing will, therefore, be to arrange the position of the lock upon the door, and to let this plate in. The proper position of the lock is upon the middle rail; and it should be so placed that the shaft or spindle of the handle used to open the latch comes in the centre of the rail. The neatest method of proceeding is to set a gauge to the width of the flange, and make a mark on the edge of the door where the lock is to be placed. The lock should then be held upon the edge of the door, and the length of the flange marked with a fine brad-awl. The wood may then be cut away with a sharp chisel to the required depth, and the lock fitted into its place, taking care to keep the iron slightly below the wood of the door. A hole should then be made, and a screw inserted through the lock, so as to secure it in its place, while the outline of the keyhole and the proper position of the handle shaft are marked upon the door, through the lock, by means of a long, fine brad-awl. A hole should then be bored with a centre-bit, large enough to allow the handle shaft to turn freely in it—of course, in the position marked upon the door. Two other centre-bit holes should also be made, one at the top and one at the bottom of the keyhole, taking care to allow plenty of room for the free passing in of the key. These holes should not be bored quite through from one side, but should be made gently from the inner side of the door, until the point of the centre-bit is just seen on the outside. The operation of boring should then be resumed, by inserting the point of the bit in the small hole and the line bored out. The intervening wood between the upper and lower borings should then be sawn away with a keyhole saw, and if at all irregular, the opening may be trimmed up with a sharp thin chisel. The key should then be fitted through to ascertain if it will pass freely. The lock may then be screwed on again, and the key and handle fitted. If these work well the remaining screws may be put in, and the lock finally fixed to the door. The "rose," which is a circular disc of brass or porcelain, may then be screwed on, and the handle passed through it and secured into its place, by means of the small screws inserted in the knobs; and it gives a much neater appearance to the work if these screws are placed underneath. The escutcheon may then be screwed on in like manner. The next thing will be to fix the "box-staple," or hasp, into which the bolts shoot to secure the door. If the door be well fitted, and stands even with the frame, all that will be needed will be to screw it on so that it is exactly level with the lock. If the door be too thin for the rabbet, however, the box will require letting into the frame; while, if it projects beyond the frame, a slip of wood must be inserted between the post and the iron box. It is important that this matter be attended to carefully, because, if the box fits too tightly upon the bolts of the lock, the latter will soon become strained and spoiled; while, if too much room be allowed, the door will not shut close, and will rattle most unpleasantly.

Before leaving the work the lock and the box should be well oiled or greased; and the screws finally examined to see that they are screwed quite tightly up to their places.

In the case of locks for safes or closets the operation of fitting is exceedingly simple. Locks for this purpose are now made to shoot the bolt both to right and left, so that no care is needed in choosing the hand. The lock does not require letting into the door; all that is required is that the keyhole be cut in the right position, which is easily ascertained by fitting the lock on the door. In most cases the frame of the door and the door itself are of the same thickness, and of course the bolt, when shot forward, passes

behind this frame and secures the door in its place. Should the frame be too thick, however, the wood must be cut away to the same thickness as the door, while if it is too thin a slip of wood must be screwed on to it to receive the bolt of the lock.

The fitting of locks to trunks and boxes, although a very handy and useful art, is one which frequently puzzles the household mechanic; and this not because it is in the least degree more difficult than many other operations which he performs with facility, but because it requires a little knack. The mistake generally made is that of fitting the lock and hasp on together, instead of first securing the lock and fitting the hasp to it. The first proceeding should be to cut away the wood inside the box sufficiently to allow for the body of the lock; when this is done the plate upon the upper surface should be let into the edge of the box, so as to be quite level with it. The keyhole should then be cut; and if the key passes freely the lock may then be screwed into its place. The hasp should next be placed in its proper position in the lock, and the key turned as it would be if the box were locked, and the lid brought down with a smart blow upon it. In most staples or hasps there are two projecting pins left which will enter the wood of the lid and secure the hasp while the key is unturned; when, if the lid be raised, the hasp will be found in the exact position required. The lid should then be marked round the edge of the staple plate, which should be let into it to the required depth and fixed with screws. If this operation be carefully performed there will be no difficulty in making the lock work well at the first trial. Fitting a lock to an ordinary trunk when the flat staple is used is a still more simple matter. All that is required here is to let the lock in at the required distance from the edge of the box (which may be ascertained by measuring with the flap), and to screw it firmly to the wood. The hasp should then be fitted, and locked into its proper position, when the lid may be shut down and the hasp screwed to it. Of course the fitting of locks to delicate cabinet work requires some care lest the work itself should be injured. Thus the holes for the screws should not be bored through, but only just enough to allow for the length of the screws, which must, of course, be regulated by the thickness of the sides or front of the box. Again, if the work be veneered, all cutting away must be done with a very sharp chisel, and a little at a time; ordinary care, however, will enable the household mechanic to overcome any seeming difficulties; and he will find that ability to execute these little jobs in the house will not only be a source of useful amusement during spare time, but will save the expenditure of a considerable sum in the course of a year.

DOMESTIC MEDICINE.—XXXIII.

GOUT.

GOUT is a disease worth popular study, not only because it is one of common occurrence, but also because the nature of it is instructive. It can be explained to a degree to which many diseases cannot be explained, and there is much about it that requires domestic medicine; that is to say, if a man with a liability to gout does not consider the nature of it, the things that help and the things that hinder it, and frame his daily life upon such considerations, he will find that his doctor can only imperfectly help and relieve him.

Symptoms of the Disease.—The common idea is that men go to bed well, and awake about two o'clock in the morning with a horrible pain in the first joint of the great toe, as if it were being squeezed in a vice, or pierced with a nail; and sometimes this may happen, especially to men with a gouty tendency, who have been drinking too much of certain things, or eating too heavy a dinner over night. But it is rarely that the attack of gout comes on at the classical hour of the morning without some previous intimation in the shape of other symptoms; and these, for the most part, are twofold. They are of a dyspeptic nature—the tongue is furred; there is an acidity of the stomach; there is little or no appetite; the stomach is troubled with flatulence; the bowels are costive; and the urine passed is scanty, and, after standing, will probably leave a little red sand, or brickdust deposit, known to doctors as uric acid, alone, or in combination with soda, or ammonia. There is also more or less feverishness of the system. Still the essential feature of gout, without which it can scarcely be said to exist, is the peculiar intense pain in the first joint of the toe, accompanied with redness, and causing, after a time, a tight swelling of the skin. This pain generally begins in the night, or, at least, comes to a crisis in the night, more or less of it or of stiffness having been felt for a few hours or days before. It lasts for a few hours in this severe degree, and then generally abates for a time, recurring more or less frequently in paroxysms until it abates; the swelling begins to decline; and the skin peels off in scales. As the redness disappears, there is often great itchiness of the affected part. After an attack of gout in a joint, there generally remains some swelling; and when the attacks come to be frequent, the swelling is considerable, and deforms the toes and fingers. In all such cases there is a deposit about the joint of *urate of soda.* When first deposited, it is of a semi-fluid or creamy consistence; but if not absorbed soon, it becomes dried into a stony form. Such deposits are called *tophes,* and are often very deforming. They take place also in other situations, as on the ear, in the tendons of muscles, in the joints making the limb stiff and in the kidneys, and other parts. The dyspeptic and feverish symptoms which precede this kind of attack also more or less accompany it throughout, and require to be considered in treating the disease. The pain generally begins in one toe, but it may soon transfer itself to the other; or it may not affect the toe, but the instep or the ankle. Occasionally, gouty subjects are attacked with internal complaints such as windy spasm, or vomiting, or bronchitis, which suddenly get well when a gouty pain attacks the toe or foot. On the other hand, the disease may disappear somewhat suddenly from the toe or foot, and be attended with worse symptoms, affecting the internal parts. In this case the gout is said to have gone inwards. The heart may act irregularly. There may be internal pain of the stomach or bowels, with or without vomiting or diarrhœa. Sometimes symptoms of inflammation of the bowels occur.

Nature of the Disease. Such are the symptoms of this remarkable disease, and we happen to know, to a great extent, not only its symptoms, but its nature—in other words, what causes the symptoms. People are very fond of explaining diseases by saying that the cause of them is the blood; and if anybody says that the cause of any given disease is in the blood, it is not easy to contradict them, only it is generally a random statement, not based on any actual examination of the blood. But concerning gout, we do actually know that it is a blood disease, that the cause of it is a certain acid in the blood - uric acid. Uric acid exists in a very slight degree in healthy blood, but has been actually found to exist in much greater quantity in the blood of persons suffering from gout. If a blister be applied to the skin of a gouty subject, the water of the bleb will be found, if chemically examined, to contain this uric acid. Not only does it exist in excess in the blood, but it is discharged from the body, by the urine, in less than the usual quantity. Such then, as far as we know, is the nature of gout. It is a disease of the blood, or of the system, in which *uric acid* accumulates in the blood, or is deposited about the small joints, especially those of the toes and fingers. The disease may come on sharply and acutely, or it may be more or

less constant or chronic, with occasional aggravations. We may repeat here that there are few diseases of which the knowledge that doctors have is so chemical and explicit as this. For doctors, or rather chemists, to be able to show a particular fault in the blood and in the urine; a chalky-looking (not chalk, however) deposit about the joints; and the acid serum of the blood when the skin is raised by a blister, is a definiteness of knowledge which is not common in the mysterious region of disease. No doubt there is something very definite in other diseases, such as scarlet fever or small-pox—so definite, that a bit of ribbon worn by a patient with scarlet fever, and put into a drawer for months, if not years, and worn by another person, may cause scarlet fever; so definite in the case of small-pox, that it can be transferred by the matter of the spots of the disease from one person to another. But in these diseases the chemists have not shown exactly the nature or the composition of the contagious matter which causes them. In scarlet fever it has not even been seen; it is only inferred from the effects produced. But here in gout it is demonstrated, and can be extracted from the blood; and, as we shall see shortly, the manufacture of it in blood can be either increased or diminished.

Causes.—Gout is often inherited, or, to speak more accurately, the tendency to it is inherited. Scudamore's statistics showed that of 523 patients affected with gout, in 309 the disease had existed in either parents or grandparents. Of 80 cases reported to a commission of the French Academy, in 34 the disease had been transmitted; and Garrod states that in the cases which he had observed a hereditary predisposition existed in 50 per cent. Still, it must be remembered, that generally only the *tendency* is inherited. Men often complain that they inherit their fathers' gout, when they should rather complain that they inherit their fathers' taste for port wine, and very likely the port wine itself. Undoubtedly, many men would never have the diseases they inherit a liability to, if they carefully avoided the causes which are generally required to operate along with the tendency. But it must be admitted that in some men the tendency is so strong that, with any care they can take, the disease will out. But even in these, a study of the things that tend to produce gout will generally be rewarded. What are the things, then, that tend to produce gout or an excess of uric acid in the blood? We shall enumerate the principal of them. First, excess of animal food, especially of rich animal food; secondly, the stronger wines, especially port wine; thirdly, malt liquors. Gout comes on in some men apparently as a consequence of overwork in depressing or cold weather. All these causes of it are aggravated by want of exercise, and cold or damp will favour the operation of them. Spirits do not tend to cause gout. When taken in excess, they have many bad consequences, but the production of gout is not one of them. Hence the disease is not common in countries where spirits are largely drunk, such as Scotland, Russia, Poland, Denmark, the United States, &c.

Such are the principal causes of gout: hereditary tendency, high living—that is, living in excess of the work done or want (appetite) felt—and the free use of wines and of malt liquor. As to the seasons most favourable to its occurrence, perhaps winter and spring are the seasons in which gouty subjects are most apt to feel their enemy. The cold winds interfere with the perspiring action of the skin, and depress the vital power of the system. Moreover, among well-to-do people, eating and drinking in excess is probably more common in winter and spring than in the warmer seasons.

The gout may come on in short and acute attacks, or it may scarcely ever leave the system free, and may distort and disable the patient. In the latter form it is called chronic gout, and is less amenable to medicine than in the acute form. Those who are subject to the acute attacks of the disease are generally not unhealthy in the intervals of the disease. There is even a notion that gout favours longevity, by lessening the tendency to other diseases. This may be gravely doubted. Most people would part with whatever chance of longevity the gout gives them. It certainly favours the occurrence of some other diseases, such as bronchitis, dyspepsia, certain forms of skin disease, affections of the kidneys, &c. Still, many sufferers from gout do attain a good age.

RABBITS.

I.

It has been much the custom in England to regard the keeping of rabbits as fitted only for the amusement of children, or as an idle foible for the fancier. This is a mistake; many of our Continental neighbours are wiser, and make the keeping of these animals a considerable branch of industry and profit, by supplying the English markets with their flesh. We shall probably learn better when we come to have attained clearer views on the subject of economy, and can properly estimate the value of little things. Under certain circumstances and good management, rabbits may be made highly remunerative, and they ought not to be neglected by those who have gardens, and no facilities for keeping larger animals.

Of all animals kept for profit, none involve so little expense as rabbits. Green food, where there is a good garden or fields can scarcely be considered as of any money value; and if they have abundance and variety of wholesome green fodder, they require but little corn or other dry food far less than poultry, whilst they increase much more rapidly. In most parts of the country a pair of young rabbits of a month old, at which age they are fit to wean, may be bought for a shilling; in five or six months they will begin to breed, and in four years it is calculated that a single pair of rabbits will, if all accidents are set aside, increase to no less than a million and a quarter!

Housing.—Rabbits may be kept in two descriptions of houses—the large rabbitry or the small hutch. To those who wish to turn rabbit-keeping to the best advantage, we advise a combination of the two; hutches should be provided for the reception of the grown bucks and of the breeding does, while all others should remain at liberty in the larger house. All places in which rabbits are to be kept should be dry, well ventilated but not draughty, and protected from the inroads of cats, rats, and other destructive animals. In many instances a disused stable or other shed can be occupied as a rabbitry, and will answer the purpose, but not so well as one designed for this particular use. The rabbitry shown in our engraving (Fig. 1) is supposed to be eighteen feet long by twelve broad, and seven feet high at the eaves. In a building of this size, the writer has sometimes had as many as thirty rabbits. It is supported on stout "collar" posts of wood, and the lower five feet six inches of the walls are made of rough planks or slabs (the outsides of timber-trees, which may be bought at a nominal price in a timber-growing district), which are joined together on the "clap-boarding" principle. Round the upper eighteen inches runs a strip of galvanised iron wire netting; shutters should be provided to close this when required. We have shown the roof thatched, but it may be covered with asphalted felt, or any other material, if desired. Such a building would by no means look unsightly in a garden, and might be built at a trifling expense. A wooden floor is preferable, as being more dry and warm than one of stone or brick; and if the floor were merely earth there would be danger of the rabbits burrowing under, and making their escape. Across this building,

at the distance of a yard from one end and four feet from the floor, a piece of wood is fastened, and between it and the floor are upright spars about six inches apart. This rack is filled with straw, and in it the rabbits delight to make holes and hiding-places. Of course this arrangement is a mere matter of taste, but it is the one adopted, and found to answer admirably by ourselves. In a rabbitry of this description the animals have free room to disport themselves after their own fashion, which they do to an amusing extent, and are far more healthy than when confined in small hutches. Into this young rabbits should be turned when they are taken from the doe, and here they can remain till they are required for the table or for other purposes. Breeding does *may* be allowed to remain here, but it is generally better to keep them in separate hutches, as must always be done with old bucks.

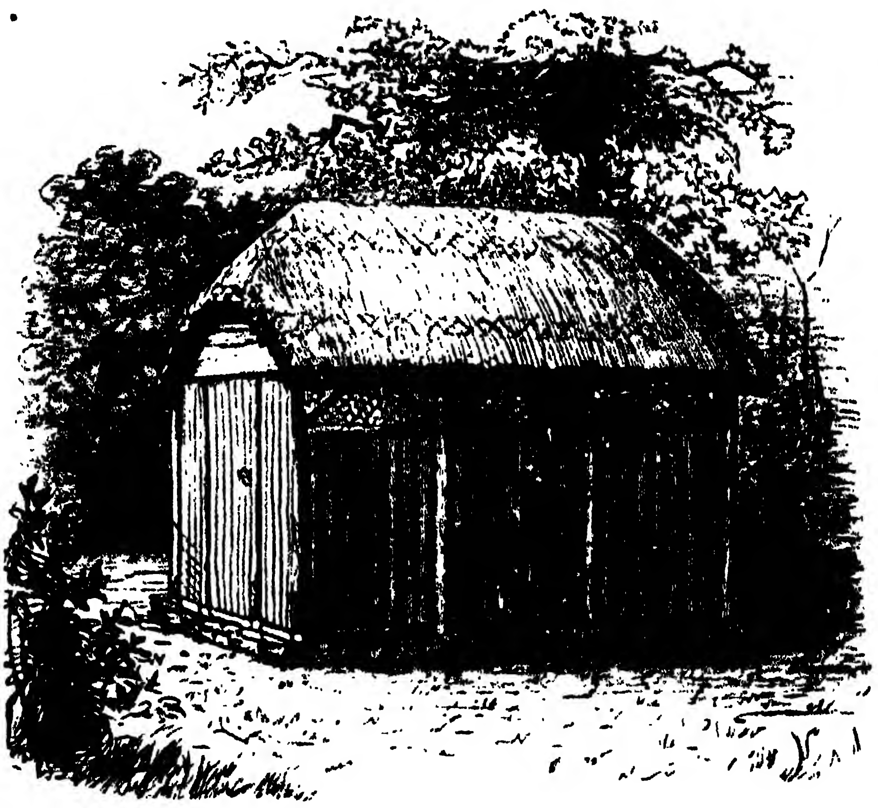


Fig. 1.

In constructing the hutches it is very desirable to have them within certain limits as large as possible. Less than four feet long, by three broad and two high does not allow sufficient space for the health and comfort of the animal; those for does should have, in addition, a smaller compartment communicating with the larger by means of a hole in which the nest may be made. The hutch should be sparred or latticed in front to afford light, and should incline a little backwards, and be pierced with holes behind, that the liquid droppings may run off. For the sake of dryness, hutches should not rest on the ground, but should be placed on legs some little distance above it. Those who cannot indulge in rabbitries must needs be content with hutches alone; cheap ones may readily be constructed by any one from old egg and tea-chests, which may be bought for 2s. and 8d. respectively, at the grocer's.

Cleanliness.—Rabbits soon become offensive, and suffer in health, if not kept perfectly clean. The rabbitry ought to be thoroughly swept out every week, and refuse and stems of vegetables removed daily. Hutches should be thoroughly cleaned twice a week. Straw is sweeter and better as litter than hay, except for the doe, when about to make her nest. A little dry earth sprinkled over the floor of the hutch, under the straw, absorbs moisture and promotes cleanliness.

Feeding.—Almost the whole of the refuse of garden-produce may be turned to account as rabbit-food—such as the outer leaves and useless parts of the different plants of the cabbage kind, carrot and parsnip tops, outsides of celery and lettuce, refuse parsley, and the like. Of some wild plants, more especially the milky ones, sow-thistle and dandelion, rabbits are fond. In the early spring, before other green food is to be procured in abundance, the keck, or wild parsley, will be found most valuable. It grows freely during the months of March and April, in all parts of the country, under trees and hedges, and in plantations and other sheltered places, but care must be taken that the hemlock, which resembles it in the shape of the leaf, is not gathered by mistake for it, as that plant is poisonous. The hemlock may be distinguished by its having dark spots upon the leaves and stems, and being generally darker and less brilliant in colour than the keck, as well as by its offensive smell and the fact that it has much less down on the leaves. The writer recollects, when a boy, having several rabbits poisoned through hemlock. When the difference between the two plants has but once been observed, there is little danger of mistake. Those who have space for the purpose, and wish to make rabbit-keeping really profitable, will do well to grow green crops, such as rye, rye-grass, vetches, lucerne, and clover, specially for them, and a regular succession of such crops, to follow each other throughout the summer, should be arranged. During the winter the chief food must consist of roots, such as swede turnips, mangold-wurzel, carrots, and parsnips—of the latter they are extremely fond; potatoes they will eat raw, but prefer them boiled. In a dearth of other proper moist food, apples or apple-parings may be given them, and even tea-leaves, when squeezed, or, as a last resource, brewers' grains. At all times of the year, rabbits should have a small quantity of dry food. Through the winter and in the summer, if they will eat it, a little sweet fresh hay is wholesome. Unless for fattening rabbits or suckling does, corn is unnecessary; but they should daily have a little bran. Rabbits put up for fattening should have oats, barley-meal, or oil-cake broken small, mixed with their bran. Troughs should always be cleaned out before putting in fresh bran or corn: the best troughs are those made by brick-makers, as their weight renders it difficult for the rabbits to upset them and waste the

contents. Most rabbit-keepers have a prejudice against giving any water to their animals, which is foolish, and in some cases cruel. When the rabbit has abundance of succulent green food, it does not need, and generally will not touch it; but it should always have access to a trough of water, that it may drink of it should it require to do so, and it will not then, in ordinary, take more than is good for it. But its green food should not be given wet; if gathered in the rain, as it must necessarily be sometimes, the superfluous moisture should be shaken off.

When a doe kindles, it is dangerous to allow her an unlimited supply of water, or she may, under the burning thirst caused by parturition, drink too much, and give herself a chill. Milk is better at this time, or if water is given, it should be in small quantities; but moisture should never wholly be withheld from a doe after kindling, as thirst is frequently believed to be the cause of the young being devoured. If she is weak after kindling, give her bread soaked in milk, or a mash of scalded bran and barley-meal; some persons recommend tea-leaves at this time. While suckling, the doe requires much more than her ordinary allowance of food, and she should have some of a more nutritious character, such as oats, or peas which have been soaked.

It is usual to feed rabbits twice a day, which would seem sufficient, since, in a wild state, they eat in the morning and evening only. Care should be taken to proportion the quantity of food given to their appetites, as nearly as may be, for if more is given, they not only waste it, but appear to eat with less relish; and it is well to remove any remains of the former meal before giving a fresh supply.

Diseases.—Tod, or *pot-belly*, is the most common and destructive malady to which rabbits are subject. The animal sets up its back and fur, its belly swells and shows—if the fur is blown aside—a bluish hue, and, in a few days, it is generally found dead. This disease is considered to be caused by too much cabbage, or wet food. The remedy is, to give no cabbage and but little green food, and to increase the allowance of dry. With old rabbits this treatment will commonly succeed; but with the young, which are more subject to this disease, tod is generally fatal.

Snuffles is supposed to arise from damp or cold. To cure it the animal should be placed in a dry and warm hutch, and fed chiefly on dry food; boiled potatoes mixed with bran or barley-meal, are considered a good feed for rabbits suffering from this disease.

For *Liver Complaint* no remedy is found efficacious, and rabbits suffering from it should be fattened and killed as soon as possible, while still wholesome for food.

SERVANTS OF THE HOUSE.—XIII.

OCCASIONAL HELP:—CHARWOMEN, NEEDLEWOMEN, SWEEPS, DUSTMEN, ETC.

THE greater the amount of work that can be done at home without occasional assistance from "extra hands," the better for household peace and economy. Upon this subject people are generally agreed, and nine out of ten persons deplore the unpleasant fact of being obliged to have occasional help, without, at the same time, making any particular effort to dispense with the necessity.

The general impression of housekeepers who have not gone into figures on the matter, is, that it is cheaper to engage people to do extra work than to keep sufficient domestics to meet any pressure that may arise. If, at the year's end, however, they cast up the indirect expenses entailed by this system of management, they will find that the cost has been greater than they imagined. As a general rule, the mere wages paid for occasional help is the smallest part of the outlay. Few charwomen and other domestic day-labourers are satisfied with sheer money payment. They look to be better fed, in *quantity* if not in *quality*, than resident servants, and, moreover, they expect to have the privilege of taking home with them odds and ends and remnants which, with good management, should be consumed in the household where they attend.

Exceptions are to be met with, of course, but the above is the general opinion entertained by people of the class that go out for a day's charing, &c.

Connected with the actual cost of the day's hire, should be taken into consideration the discomforts and disorder which the presence of strangers in a household entails. For the time being they are the guests of the servants, rather than the servant of the employer. It is a rare pleasure if the extra hand, thus called in, goes to her work in a thoroughly earnest and indefatigable spirit. To begin with, charwomen do not usually bring with them adequate knowledge, except of work of the roughest kind, and the additional food and beer generally allowed only serve to dull whatever energy and intelligence they may happen to possess.

Households that are subject to be frequently supplemented by charwomen and other like assistants, are also liable to be exposed to still greater disturbances than those described. The love of gossip is inherent in the class, and the affairs of every one of the families the charwoman serves become in most cases a common fund of conversation. Domestic matters of the most delicate nature are discussed, and in an unsparing manner. Whatever facts are not accurately known are unhesitatingly surmised, until all privacy of living is out of the question with whatever neighbours may happen to be at the mercy of the same ignorant tongue.

There are families that are never free from the presence of the charwoman. She is no sooner out of the house than some unexpected domestic crisis requires her services afresh. These households, with very few exceptions, are never settled with servants; good, bad, and indifferent characters from the last place, appear to be attended with the same consequences. The servants do not stay; neither can they always be induced to state the reason of their objection. If the reasons could be obtained, they would be discovered, in a large number of cases, to be founded on the fact that the servants have "heard something about the place they did not like." The simple circumstance of many predecessors having filled the situation within a short space of time, is often sufficient to give a good servant a dislike to a place. Even when every attempt has been made to conciliate supposed objections, and a total change made in all persons hitherto employed in the house, the same mischance is apt to occur. One person is generally left behind, and that person is usually the charwoman, who comes to clear up and put things in order for new comers. Thankful as one may be at times for any domestic help, on any terms, it should be borne in mind that the accommodation may be had at too high a price; and that there are occasions when it is better to help oneself, or do without help at all, rather than retain the services of a suspected medium.

Uncharitable as the foregoing observations may appear to people who have not had very long experience of housekeeping, the main facts will be found verified by the circumstance, that those who have had servants in their employ a good number of years, seldom seek outside aid. The members of the household seem to be actuated by a common interest, and are willing to bear temporary inconvenience arising from unusual causes.

A just employer, sensible of the comfort a good servant effects by doing extra work, will not suffer her labour to go unrewarded—a little present, or a pleasure trip when the labour is done, is a fair and suitable acknowledgment of the service rendered.

The only instance when hiring a charwoman is generally a judicious measure is when a single-handed servant is kept. The extra hand, then, should have special work to do, and nothing beyond. She should be required to come and leave at a certain time, and her food and wages should be a matter of distinct understanding. A washerwoman, or a charwoman who goes out for a day's washing, for instance, should be kept to her washing just as a gardener, working by the day, is expected to keep to his gardening. Everything should be ready to her hand on her arrival. The clothes sorted, the copper-fire lighted, and the other necessaries of the work supplied. When her task is done, she should be required to leave the kitchen or scullery in good order, and the copper clean and dry. The average pay of a washerwoman in and near London is two shillings per day, provided food and beer be found; and half-a-crown if required to "find herself." A certain quantity of beer or gin is generally stipulated for in the latter case. Some charwomen are willing to go out for less pay, on condition that their food and beer are found; but in the end it will be discovered that the cheaper and more satisfactory plan is to pay an equivalent for all extras *in money*.

Superior to the charwoman in social position, but liable to the same objections in some respects, is that large class of women who go out for a day's work at the needle. The blessed invention of the sewing-machine has reduced this class of workers considerably, and it is now by no means easy to get a really good seamstress to take a day's work at the employer's house. The best have sewing-machines of their own, and have plenty of employment at full pay at home. The least skilled are still to be had, but they are inefficient hands generally, and require constant supervision.

It is a great question whether, as matters stand, it is not far cheaper to give out extra needlework that cannot be done at home, by the family and servants, in preference to engaging needlewomen of the kind now-a-days to be had. In the first place, a great deal of time is usually wasted in giving the necessary and minute instructions required, and a considerable portion of the day is spent in the number of meals consumed.

The real economy of having needlewomen in the house consists in several members of the family lending assistance in doing the unskilled portions of the work—running seams, making piping, &c. The seamstress is then able to devote her time to the more important branches of the work—fitting and finishing. At the same time, if a needlewoman is kept exclusively to this employment, she naturally expects a higher rate of remuneration than one who is only capable of doing inferior work. Needlewomen of the latter class are generally content to receive about two shillings a day; whilst one working in a family whose daughters, for instance, do the easy parts of the labour, looks with reason to receive higher wages. From three shillings and upwards is often asked for assistance in the latter case.

The chief economy in having dresses made up at home lies in making use of old materials. If everything has to be bought new, there is little advantage in making up materials at home, that is to say, unless the seamstress gets very considerable aid.

Everything should be ready when the seamstress arrives; patterns should be decided on beforehand, and the materials for the work selected.

Amongst the rougher kinds of household labour, which are a hindrance to personal comfort, may be classed having the chimneys swept. Unless the structure of a chimney, however, be very defective, there is no occasion to have the sweeps oftener than once in about six weeks for kitchen flues, and less often for sitting-room chimneys. Any apparent necessity for their attendance at shorter intervals, is generally owing to the cook or housemaid neglecting to keep the mouth of the chimney clear by sweeping round the opening daily as far as her arm will reach. If this precaution is neglected, the best constructed chimneys will be liable to smoke, and sending for the sweeps will be the consequence.

The Ramoneur Company is an excellent institution for subscribers who are troubled with smoky chimneys and careless servants. For half-a-guinea a year, one can have all the chimneys of a house swept as often as liked—a privilege, we presume, that is rarely abused.

Whenever it is considered necessary that a chimney should be swept, some one should be appointed to go outside the house to see that the sweep's broom appears above the top of the chimney. This, in fact, is the only proof of the work having been effectually done; otherwise the ordinary hearth-broom would answer the purpose as well. Scraping the top of a chimney-pot is sometimes a successful mode of curing a chimney of smoking.

Preparatory to the sweep's visit, all movable articles should be either removed from the apartment or covered up. The looking-glasses should be lightly covered with a sheet or sweeping cloth, and all mats taken away, leaving a piece of drugget for the sweeps to walk upon. After a chimney has been swept, the carpet of the room should be thoroughly brushed, and the walls lightly swept with a hair broom covered with a clean glass-cloth.

Dustmen are periodically necessary visitants, although not so frequently necessary as some people imagine. In the suburbs of London, where the collection of dust is not enforced, there is no occasion for a dust-bin at all, except to receive sifted cinders, until it is convenient to dig them into the earth or otherwise dispose of them. Dust-bins as ordinarily used are nothing better than foul receptacles for litter and rubbish that ought to be consumed by the kitchen fire. It is an untidy and unhealthy practice to throw vegetable trimmings, pieces of paper, bones, and dirty rags into the dust-hole. The practice is also reprehensible on account of the wasteful facilities the dust bin affords of getting rid of remnants of food. If decently set aside, such remnants would afford a meal to some of the starving poor, to be found everywhere. A strict watch on the emptying of dust-bins in various neighbourhoods will best illustrate the necessity of looking after such things at home.

The practice of giving "pig wash" to people who apply at some houses for the gift is also liable to be abused. People really do not care to take the trouble of collecting the wash if it contains not remains of loaves, joints, vegetables, &c. Extravagant servants find the latter means a most convenient mode of effecting a clearance of food that has been repeatedly at table. The benefit such a gift confers on the collector is very questionable.

BATHING.

COLD AIR BATHS, HOT AIR BATHS, COLD WATER BATHS.

BEFORE passing from sea-bathing (see page 211, Vol. II.) to fresh water and other baths, we may just pause to note that many of the advantages of sea-bathing may be obtained even by those who are unable to leave home by the use of the dry sea salt.

We have already, under the head "Toilette," treated of the bath as regards its daily and common use in connection with the general care of the skin. Here, without treading on the ground over which we have already gone (see pages 45 and 62 of our first volume), we shall treat of it in a wider and fuller sense.

The use of the bath may be traced back to the prehistoric period. The Romans did not so much contribute to the science and practical knowledge of the

use of the bath as did the Greeks, notwithstanding that with them it was so much in vogue. It was at the end of the fifteenth century, at the time of the renaissance of the sciences, that a more scientific use of the bath and of mineral waters sprang up under the leadership of that learned monk, Clement de Gratz. But our business being rather with the practical than the historical, we shall not pursue this phase of our subject.

Efficacy and Influence of the Bath.—The first point to be considered in studying the efficacy of the bath is connected with the influence which it is capable of exercising over the whole human frame, and more directly over the nervous and vascular structure of the skin. Look at the comparatively enormous surface of the skin, and its large supply of nerves and capillary blood-vessels, and consider the never-ceasing change of their contents, both as regards the extent of their supply and its quality; indicated by the changes of colour from white to crimson and livid blue. Look, too, at the enormous power of the skin over the whole mass of the blood, and the resultant qualities of the same; as an excretory organ, consider the extent of fluid exuded and exhaled through its agency, by which numerous deleterious compounds chemically formed in the laboratory of the human system, as well as detrimental extraneous substances admitted into the blood, are expelled. By its agency are removed nitrogen from the kidneys, and carbonic acid gas from the lungs. So important is it to life that, were its pores stopped and perspiration prevented, death must speedily ensue. Such being the power and functions of the skin, we shall have little difficulty in appreciating the vast influence a bath, in any of its forms, must have upon this great and powerful organ. With regard to the secretory powers of the skin, we can too readily perceive the advantageous operation of the bath to need explanation; we need only call to mind the efficient medication which is daily performed by means of its absorbent powers; or how could the wondrous cures effected by means of belladonna, mercurial ointments, narcotic lotions, poultices, and such like be produced? We can further perceive the extraordinary importance of the bath with relation to the skin if we call to mind the great variety of diseases which call forth all our skill in their medication, which, without the aid of the bath, would be next to impossible to attempt. Where immediate pecuniary advantage is to be derived from a perfect course of training, the value of the bath has not been forgotten. It was used for this purpose by the Greeks and Romans, and is at present employed in the training of those engaged in athletics. There is no doubt that the cold bath, or even sponging with cold water, lends tone to the skin, strength to its vessels, and energy to its functions; and we are glad to be able to remark that in this country diseases arising from want of attention to the skin and disregard to cleanliness are greatly on the decrease. But there is a point very generally disregarded, yet worthy of diligent study, namely, the difference of the effects of the cold bath upon different ages and different constitutions; not only this, but more especially the difference in the result of such effects; for instance, a shock which might prove tonic and beneficial to a person in the prime of life, might prove deadly to the aged, or to the imbecile and young, since in infancy and early youth the organisation is immature, and in age it is degenerate and decrepit.

Cold Air Bath.—There are many and divers kinds of baths, as also methods of bathing. First, there is the common cold air bath, not generally recognised by us, by reason of our familiarity with it; nevertheless, it is a bath equally with water, but it is our natural bath, as water is the natural bath of the fish. We use it, too, as a bath, only we do not apply the term to it. Regard for a moment the emaciated condition of those unfortunate creatures who have been long excluded from fresh air, and then you will readily recognise the value of that bath which is so much too generally disregarded. When we go for our morning's walk, it is for the purpose of taking a bath of the first stage. We relish the freshness of the morning air, and we often go out clad in looser or thinner garments than we are accustomed to wear, for the purpose of admitting this bath to our skins. We recognise its value to our children's frames, and with this view we leave their limbs unshackled by tight garments, with bare and naked arms and shoulders, although we ourselves have become habituated to the practice of allowing this valuable bath to be impeded from contact with the skin of the greater part of our bodies. Some of us, who have become aware of the salubrious effect of admitting it, and who are early risers, slip on loose garments and saunter about the house or garden, or sit at an open window. But the proper way of taking a cold air bath is to undress completely, and rub the body with a flesh-brush or coarse towel, which will regulate the secreting surface of the skin, give tone to the muscles, and general energy to the system. It also forms a good substitute for those to whom the shower-bath is unsuited. The value of the cold air bath and its local application in arresting hæmorrhage, in fainting, and in other diseases and ailments, is generally known, and is fully appreciated by the physician. This bath has of late received considerable attention from, amongst others, Dr. Warren, of New York.

Hot Air and Gaseous Baths.—There is also the hot air bath, of which we shall have cause fully to speak when we come to treat of the Turkish bath. There are, moreover, gaseous baths, of which oxygen and carbonic acid are the most general.

Cold Water Bath.—We shall now speak of water baths, which are divisible under three heads—ordinary water, sea water, and mineral water. Sea water we have already spoken of, and we will now speak of ordinary water, of which there are many forms, dependent on its purity or admixture, its temperature, and the mode of its application. The temperature of a cold bath generally ranges between 40° and 65° Fahr., although it may go as low as 32°, at which point water becomes ice. In this state, too, it is sometimes locally applied with great effect. It may also exceed 65°, dependent on its exposure to the sun, or other cause of exceptional heat. The effect of the cold bath upon the system is very extraordinary. As well as being one of the most refreshing comforts and luxuries of life, it is amongst the most efficient and most restorative agents that can be employed in the cure of disease, as it nerves up the contractile tissues, and calls into full action the circulation of the capillary blood-vessels, forcing their blood into the grand arterial trunks. Thus, when bathing, the surface of the body becomes at first cold, and wears a pale appearance, being deprived of the contents of its superficial capillary blood-vessels, and undergoing a great change, known as the *shock*, represented by gasping, shivering, and general depression of the system. Afterwards is felt the reaction—the pleasing and increased glow of the circulation, with renewed warmth, while the heart beats with fresh vigour, and the blood rushes with unwonted impetus to the surface of the body,* reaching the very extremities of the capillary blood-vessels. This is the picture of a healthy bath. No one can doubt its beneficial effects on the system. The mental as well as the physical powers of the human frame are invigorated, and the whole body rejoices with buoyancy and exhilaration of spirits. Such being the advantages of a cold bath, we must be particular in studying how to ensure these beneficial results. Rapid reaction, as above described, is the object to be aimed at, and which can always be obtained if proper and adequate measures are adopted in regulating the bath to the

strength of the bather, however weak or ailing he be, as the shock and effects of the bath will be in proportion to the temperature of the water, and the extent of time the bather remains in it. The water should not, as a rule, be excessively cold, but this must vary according to circumstances. Generally speaking, the temperature of the water should not be less than 60°, as a bath at 80° will feel somewhat cold, the temperature of the human body being, as a rule, about 96°. It must be observed, however, that if the health of the body is sufficiently perfect to prevent any injury being occasioned by the too great influx of the blood to any of its organs, the colder the water, provided it be not in excess, the greater and more beneficial will be the result; the reaction being necessarily greater. The effect will vary in accordance with the degree of energy with which the heart and arteries are acting at the time. The influence of the mind on all the functions of the body is so great that the effect of a cold bath upon the system will, to a considerable degree, be determined by the state of the mind at the time. If the mind is languid, fatigued, or gloomy and desponding, a cold bath may be attended with risk, and certainly will not be followed by instantaneous and healthy reaction.

Let us now look on the other side of the picture, and consider the deadly effects which disregard to a few simple salutary rules may produce. The effects of injudicious bathing are:—Continued pallor of the surface of the body, with shivering and coldness, enfeebled beating of the pulse, depression of spirits, generally accompanied by headache, vomiting, and pain at the lower part of the stomach, all appetite and desire for food consequently vanishing. These effects are generally produced by too prolonged bathing, especially in the case of bathers having delicate constitutions. The useful, wholesome, and healthy exercise of swimming often induces its possessors to indulge in a too prolonged enjoyment of the luxury, from which they suffer in the way above indicated. In general, however, persons in good health, and of sanguine temperament, may without risk, indulge in a somewhat prolonged stay in the water, but persons of delicate constitutions, with pale faces, feeble circulation, and of phlegmatic temperament, must, under no circumstances, remain in the water any length of time. Since habit in this, as in other matters, is "second nature," and as, after short experience, spasmodic and convulsive respirations cease, we cannot prescribe any specified time for remaining in the water. The colder the water, the shorter time should the immersion continue. For the delicate and those who are not swimmers, five and at most ten minutes, the water being comparatively warm, is amply sufficient, and fifteen or twenty minutes for the robust and healthy. In infancy and in age the cold bath should be used with great precaution, as a shock to the system is with difficulty overcome by the former on account of its immaturity, and by the latter on account of its decline and degeneracy. It is here our purpose to teach and make generally understood those principles which favour the reaction we have spoken of, and to divest the public mind of a misinterpretation of the common rule, "that the body should be cool at the time of bathing." This rule, if rightly understood, is a golden one; but as it has been interpreted, it is most pernicious. Under its protection has crept in a popular error that the circulation should be in a comparatively quiescent state, and the body in a chilly condition at the time of bathing. Those who have possessed the luxury of a bath in their own houses, have in consequence plunged into their bath unprepared, without first having taken moderate exercise sufficient to produce a glow; and no one knows the extent of harm that may be thus occasioned. Again, guided by the same false interpretation of this golden rule, there are those who, having taken due exercise, loiter about, perhaps on the very brink of the bath, until the increase in the circulation is rapidly subsiding, heat vanishing, and the body becoming thoroughly cooled, with even a feeling of chilliness succeeding. Now the true principle which favours reaction is almost the converse, that is, plunging into the water while the skin is comfortably warm, notwithstanding even beads of perspiration stand upon it, which will not hurt if the bather be healthy; who, having quickly slipped off his clothes, should plunge in headlong without delay. The rule of taking a bath, however, when the body is in a glowing state, must not be confused with the deadly practice of taking a bath before the body is cooled after having experienced fatigue, which many foolish people do, thinking to reinvigorate and restore their energies. No bathing, it is to be remarked, can be safe without the head being first immersed in the water, or what will serve the same purpose, as commonly practised on the French coast, pouring a bucket of water over the head and back immediately upon entering the bath. The value of flesh-gloves for the purpose of rubbing the chest, and, indeed, the whole of the body, should not be overlooked.

THE MANAGEMENT OF FEATHER-BEDS.

THE following hints on the management of feather-beds, and on the preparation of feathers for making them, will be found a valuable addition to those given on the latter subject at page 195, vol. ii.

After feather-beds have been in use for some four or five years, it is a point of good management to re-dress the feathers. This should be done in a room from which the furniture has been removed, as the feathers will scatter themselves in all directions; here they can be turned from the ticks, and all clotted lumps broken to pieces, and the softness and elasticity of the whole thus restored. They should then be placed, a few handfuls at a time, in a fine wire or wicker sieve, the dust and other impurities sifted from them, and any stray quills which may happen to remain should be removed. The ticks should, of course, be washed, or new ones can, if necessary, be substituted. Pillows should be treated in the same way.

When geese are plucked it is well to remove the coarse outer feathers first, in order that the fine inner down may be kept separate. The latter forms the most valuable kind of feathers, and should be kept for making pillows only.

The feathers of *very young* birds have too much of the succulent quill, and too little of the down of the developed feather, to be of much value. Geese or ducks are rarely killed for the table before the feathers are sufficiently "up" to be of use. But chickens are sometimes plucked at such an age as to render the feathers worthless, and young pigeons generally. Such feathers ought not, therefore, to be kept, as they will not pay for the trouble of drying and dressing. Neither are the feathers of game generally worth preserving, as it is frequently kept till high, when the feathers acquire a taint which cannot afterwards be got rid of. They are also generally full of vermin.

For destroying insect life among the feathers and cleansing them generally, as well as making them leave the skin more freely, it is found well to scald the bird before plucking it. The water for this purpose should be of the same temperature as for scalding pork: viz., three parts boiling and one cold. The fowl, &c., should be held in about three minutes. Something will also be gained in the appearance of the fowl, which will look much plumper and whiter than if not scalded. Feathers thus treated should be well dried on shallow tin pans before being put in bags.

It may be right to state that in the opinion of some good housewives the practice of waxing ticks described in our former hints is not advisable: they hold that the wax rubs into the substance of the feathers and causes them

to clog together, thus destroying their elasticity. The object of waxing is to prevent the feathers from working through the tick, and the necessity for it may be avoided by buying one of sufficient thickness and closeness.

HOUSEHOLD CHEMISTRY.—IX.

CHEMICAL COMPOSITION OF THE HUMAN BODY.

To resume our description of the chemical constitution of the human body. Calcium is found, not, however, in the metallic state, but in combination with oxygen as a hydrate of lime, which united with phosphoric acid, forms the chief constituent of the bone. Sulphur, a substance with which we are all familiar under the name of brimstone, is present to the amount of 2 ounces 290 grains. The unpleasant odour resulting from the decomposition of putrid meat, is due to the escape of hydrogen in combination with this substance. There are also two ounces of an elementary substance called fluorine. It is chiefly found in union with lime in the bones, and in the enamel of the teeth. Of chlorine, another gas, 2 ounces and 382 grains are contained. This gas exists in the body in combination principally with a little less than the same quantity of the metal sodium. The body contains also small quantities of other substances, such as silica. This metal is found, in combination with oxygen, in the hair and teeth. Only two grains of silica are contained in the body.

Iron is principally found in the blood. It is so necessary to health, that a reduced quantity of this metal is indicated by diminished strength and a pallid complexion. The quantity of iron contained is about 100 grains.

The metal potassium, a substance which, in its metallic state, takes fire when thrown on water, and continues to burn with a violet flame until it is consumed, and which has so great an affinity for oxygen that it requires to be kept in naphtha, is also contained in the human body. So is magnesium, which burns with a pure white light.

If we now examine the proximate principles, formed by the union of the elements we have mentioned, we find that in addition to 111 pounds of water and the earthy substances of the bones – fat, gelatine, albumen, and fibrine, are present. Of fat, we find about twelve pounds. In addition to other important uses, fat serves to cover the surface of the body, beneath the skin, and thus fills up the inequalities of the frame, so that the skin may lay smoothly over it. It also acts as a cushion to protect important organs from injury by mechanical violence, &c. The average quantity of gelatine contained in the body is about fifteen pounds. The skin, animal matter of the bones, ligaments and tendons, and many of the tissues, contain this substance. Of albumen the frame contains four pounds three ounces. This substance is the chief portion of the liquid part of the blood. The serum that is left when the blood has become coagulated and the clot has separated from the other portion, consists chiefly of this substance. It also enters largely into the composition of the nerves, brain, and spinal cord. Four pounds of fibrine are contained in the body. It is chiefly found in the muscles. That portion of the blood which forms a clot when withdrawn from the body, almost entirely consists of this principle. About eight pounds of mineral matter are met with in a man weighing 150 pounds, the chief part being found in the osseous portion of the frame. Among the earthy matters contained in the bones, we find five pounds thirteen ounces of the phosphate of lime.

We also find one pound of the carbonate and three ounces of the fluoride of lime, and a small quantity of the phosphate of magnesia. The relative proportions of the carbonate of lime, found in company with the phosphate of lime in bones, varies according to the age of the individual. In a young infant a quarter of the earthy matter consists of the carbonate; the quantity gradually diminishing with age. It is found in the bones of the adult in the proportion of one part to six. Elderly persons contain still less; in them it is found in the proportion of one part to eight of the phosphate.

The fluoride of lime, that serves to give hardness to the enamel of the teeth and to the bones, is identical with the substance known under the name of fluor-spar.

Phosphate of lime is also found in every animal tissue of the body. All flesh-forming substances, both animal and vegetable, contain it. Some portions of the tissues contain it in the proportion of only one-half part in the hundred; others have as much as two per cent. in their composition. Caseine, which contains a large proportion of this substance, has as much as six parts in the hundred in its composition. A human body of the weight before mentioned (150 pounds), would also contain 3 ounces 370 grains of the chloride of sodium, or common table salt. More of this chloride is contained in the body than of any other salt. In the blood it is found that each thousandth part contain six parts of this substance. It is believed that it promotes health by assisting the gastric fluid in digesting food, and that it also aids in the transformation of the tissues. It is probably also of service in other ways. One hundred and seventy-two grains of carbonate of soda are also found in the body. This salt is probably of use in promoting digestion, by rendering the flesh-forming food that contains fibrine, caseine, &c., more soluble. A small quantity of this carbonate is always present in the blood. It probably assists in purifying that fluid by aiding it to get rid of carbonic acid during respiration. The sulphates and phosphates of potash and soda are also found among the constituents of the body. Of sulphate of soda, or Glauber's salts, 1 ounce 170 grains are discovered; 400 grains of the phosphate of soda, and the same quantity of the sulphate of potash, are also present; the phosphate of potash is contained to only the quarter of that amount, or 100 grains; and of the phosphate of magnesia only three-quarters of that quantity, or 75 grains. The sulphates, although they are so often found, do not appear to be essential to health, or to the structure of the body. The other two constituents of the frame are peroxide of iron 150 grains and 3 grains of silica. The iron is met with chiefly in the blood; it assists that fluid in conveying oxygen to the system. Iron is also found in the gastric juice. Human hair contains this metal, and it is also present in the *pigmentum nigrum*, or black colouring matter of the eye.

Other metals, such as copper, lead, and manganese, have occasionally been found in the bile, but only in consequence of their having been taken accidentally with the food.

COOKERY.—L.

NATIVE VEGETABLES.

Dandelion Salad.—The dwellers on the south coast of England, uncovering some sea-side plants over which the sand had been drifted by the wind, discovered sea-kale, cooked, and ate it, and so led to its introduction into our gardens. Workpeople, levelling mole-hills in a pasture, found delicate white shoots which, on tasting, they found so excellent that blanched dandelion was soon an established salad, to be had in spring in almost every civilised Continental market. The mode of blanching is generally copied from the moles; a little earth or sand is thrown over the plant as it grows wild, and, after many days, the produce taken. A surer plan, which we adopt ourselves, is to take up dandelion roots in autumn, trim off all the old leaves, plant them as thick as they will stick in large flower-pots in earth or sand, give them one watering, and

then set them in a warm and quite dark cellar. When the yellow-blanched shoots are three or four inches long, they are fit to cut. The roots will produce a small second crop, after which they are only fit to be destroyed. It is even better to plant fresh roots than to wait for the scanty second crop. Dandelions are not difficult to find. The owl, who offered to settle five hundred ruined villages on his daughter as a marriage portion, said, "God grant a long life to Sultan Mahmoud; while he reigns over us, we shall never want ruined villages." So, lovers of this salad may say, "God grant long lives to slovenly farmers and gardeners; while they remain amongst us, even in a minority, we shall never want for dandelions." Nevertheless, blanched dandelion is never *cheap*, it takes too much trouble to grow it in quantity, which may be a reason with some for not despising it. Do you like nuts? In this, you have their flavour and their crispness, without their indigestibility. Permit us to recommend a trial. The best dressing is a sufficiency of good oil, a sprinkling of salt, and a slight dash of vinegar; or the salad mixture without oil, already given, may be used.

N.B.—Blanched dandelion is an elegant addition to a mixed salad, as of celery-hearts, beet-root, blanched chicory, watercress, blanched endive, &c.; but it should always be present in sufficient quantity to give the character to the salad.

But even unblanched dandelion is consumed in France in enormous quantities, as salad, throughout the spring. Women scour the fields and pastures with a basket and a knife, and every plant they light upon is secured to help to fill the bowl. It is simply picked over, washed, and sent to market, and finds ready purchasers in the Parisian workpeople and bourgeoisie. It is dressed in the ordinary way, with oil, vinegar, pepper, salt, and mustard. In spite of its popularity with our neighbours, we cannot recommend *this* salad as a dainty, though it may be a wholesome stop-gap and a good spring alterative; for it is bitter and tough, requiring patient mastication. Unblanched dandelion, in our opinion, is better cooked, when it becomes a really serviceable vegetable.

Stewed Dandelion. This is one of the receipts which frighten prejudiced persons by their very name, because they never heard of such a thing before. All we say is, first try, and then condemn it. Procure a quantity of fresh green dandelion leaves—the weed so troublesome in neglected gardens—and which takes permanent possession of all waste lands. The article is anything but scarce, and fresh growths after showery weather may be had all summer and autumn long. Procure an equal quantity of sorrel leaves, keeping the two separate. Pick out all withered tips and bits of root, and reject the footstalks of the leaves. Shred each, not too coarsely, into two pails of water, and wash them well, to get rid of grit, &c. Then fish out the shred dandelion, and put it into a large stewpan; pour over it enough boiling water to cover it, and let it boil. A pan (copper or iron, not tinned sheet-iron) with a stout, thick bottom is best, to avoid burning; against which, frequent stirring during the whole cooking is advisable. The dandelion is put in first, because it takes much longer stewing. When it is half done, put in the sorrel, stirring it well in amongst it. The quantity of liquid should be kept as small as may be. If when the herbs are perfectly tender, there remains no more moisture than suffices to maintain the whole in a state of mash, you have quite succeeded. If there is more, it must be drained away, or boiled down; which latter exposes it to the risk of burning. The right consistency and mellowness obtained, stir in a lump of butter, season lightly with pepper and salt, and serve, like spinach, in a vegetable-dish. You may garnish with strips and triangles of fried bread. It goes well with white meats—sweetbreads, veal in general, and pork; it serves well as a bed for poached eggs or boiled sausages. The dandelion, though a wholesome and not unpleasant bitter, is less palatable without the sorrel. We prefer the combination to most specimens of spinach that fall to our lot. But it will probably find its way to the tables of the rich before it is welcomed by persons in straitened circumstances.

Endive, insufficient blanched for salad, is excellent, stewed as above, and served spinachwise. By itself, it inclines to the sea-kale flavour; sorrel can be mixed with it, in less quantity than with dandelion.

Sorrel (*Rumex acetosa*), so often mentioned here, grows wild, and may be had for the plucking; the wild species, too, is good, though the leaves are small. But to avoid the trouble of hunting for it, and sometimes having to look for a needle in a bottle of hay, every garden should contain a few plants, and, as the taste for it increases, a row. The most useful variety is the broad-leaved sorrel, easily propagated either by seed or division of the root; which root, like that of rhubarb, will stand almost any amount of ill-usage. After being kicked about the garden ever so long, and planted, it will grow without showing signs of bearing malice. The seed is very small, and must only be slightly covered with earth. The plants may be thinned to from three to six inches apart; but if they are left crowded no great harm will be done, as they must eventually be transplanted. Spring-sown sorrel may be cut the next autumn; during the following season it will afford several cuttings.

While our gardeners are searching after new spinaceous plants, and still retain for summer use that very indifferent though historic vegetable, New Zealand spinach (*Tetragonia expansa*,) which we owe to Captain Cook and Sir Joseph Banks, they forget another dock, the good old Italian perennial herb—

Patience (*Rumex patientia*), which is as easily cultivated as sorrel, and remarkable for its precocity as a spring spinach. Its handsome, reddish-stalked, perennial leaves, might procure its admission as a foliage-plant in many a suburban shrubbery or rockery. It will bear cutting over three or four times during the summer, and will continue productive for several years. Neill intimates that patience has fallen into disuse, because people do not know how to cook it. Those who can cook spinach (and not every good plain cook can), will find no difficulty in the matter. Rend off each green side of the leaf from the mid-rib; throw them into cold water; let them lie there long enough to remove grit and restore their freshness. Put them into a close-covered saucepan, with no more water than hangs to them, with the usual precautions to prevent burning. When tender, mash well with a spoon, seasoning with pepper, salt, and butter. When these are incorporated, turn your patience into a hot vegetable-dish; smooth the surface with the back of a spoon; toast a slice of bread, butter it well; cut it into small dice, and sprinkle them over the vegetables. Patience being the very mildest of all the plants that are used as spinaches, it is improved, to the taste of many, by the addition, at the time of cooking, of a small proportion of sorrel, or of true spinach, or of both.

A native candidate for the favour of gardeners is—

Good King Henry, Wild Spinach (*Chærophyllum bonus Henricus*), *or Goosefoot.*—The humbler classes of this country long used this neglected plant as an esculent, and it merits renewed attention and experiment on the part of the gardener and the cook. It manifests its hankering after the pleasures of domesticity by growing naturally in places which receive the outcast rubbish of human dwellings. If as much pains had been bestowed on it as have been on rhubarb, perhaps the result might be something really good. The young shoots are eaten in spring as a sort of rustic asparagus. Curtis says that in his time, Good King Henry was cultivated in Lincolnshire in preference to garden spinach. It is easily propagated

by dividing the roots in autumn, to be planted a foot or fifteen inches apart, and a bed will last for several years.—*Delamere's Kitchen Garden.*

The Watercress (*Nasturtium aquaticum*) is appreciated, both at home and abroad, with some approach to its real value, especially in places where it is not to be had easily. Among the things we recommend people to do for themselves, when they can, is the gathering of water-cresses. A professional watercresser who has found a luxuriant bed, cannot be expected to turn her back upon it because the water in which it grows is foul. External impurities are to be removed by washing; but what of the impurities absorbed within? If you cannot find cresses in *running* water, you can take them from waters that are still, but pure. Besides, not only the pleasure, but the health derived from a country walk consists in its having an object; and a cress-hunt is not, that we perceive, less dignified than a fern-chase or a beetle-hunt. Watercresses, with us, are mostly used with bread and salt, as an accompaniment to cheese. Sometimes they replace radishes on the breakfast or luncheon-table. They are excellent dressed as salad, with oil, &c., or salad-mixture, either alone or in a medley salad. They are good, too, boiled as spinach—the only way in which they are eatable after running up to flower. Who ever heard of cooked watercresses? and who, at one epoch of the history of the world, ever heard of boiled turkey and oyster-sauce? William the Conqueror probably never heard of such things. Watercresses are good from autumn till early summer, unless when cut off by frost. Bronze-leaved specimens are most esteemed. Their hue *may* arise from their containing a slight trace of iron, which would confirm the justness of the preference.

Nettles and Ferns.—Galton informs us, in one of his works, that there are two moderately nutritious plants (also probably wholesome and medicinal, as correctives of a salt-meat diet)—namely, nettles and ferns of various species—that are found wild in many countries; and he says: "When the young stems of ferns are gathered quite tender, before they are covered with down, and while the first leaves are bent and rolled up in themselves, you have only to boil them in pure water to realise a dish of delicious asparagus. We would also recommend the nettle, which, in our opinion, might be made an advantageous substitute for spinach; indeed, more than once we proved this by our own experience. The nettles should be gathered quite young, when the leaves are perfectly tender. The plant should be pulled up whole, with a portion of the root. In order to preserve your hands from the sharp, biting liquid which issues from the points, you should wrap them in linen of close texture. When once the nettle is boiled, it is perfectly innocuous, and this vegetable, so rough in its exterior, becomes a very delicate dish. We were able to enjoy this delightful variety of esculents for more than a month. Then the little tubercles (?) of the fern become hollow and horny, and the stems themselves grow as hard as wood, while the nettle, armed with a long white beard, presented only a menacing and awful aspect."

"The roots of many kinds of ferns," Mr. Galton remarks, "perhaps all of them, are edible. Our poor in England will eat neither fern nor nettle. I [Francis Galton, F.R.S.] like them."

Recourse has often been had to the nettle as a vegetable during times of scarcity in France. When not so pressed, the people neglect it, although they largely consume several plants despised by, or scarcely known to our population, much less allowed a place in a garden. The nettle is far from being the only vegetable whose acrid properties are destroyed by cooking, or which contains at the same time a mild and active principle in close approximation. In the cultivated field-poppy, for instance, the *seeds* supply a very pleasant and perfectly inactive eating-oil, for salads, &c., while the capsule contains an opiate, employed in medicine for sleeping-draughts, soothing-lotions, &c. In Eastern Europe, the quite young shoots of the wild hop are blanched, like seakale, by covering them with earth, when they make a delicate dish, in high esteem. Unblanched and too forward, they are uneatably tough and bitter.

The great objection both to nettles and ferns as food, is the shortness of the period during which they remain young and tender. A couple of hot days in spring will make all the difference between their being serviceable and unserviceable; but in this respect they are not worse than spinach, garden-cress, and several others; and it is, perhaps, even easier to control the effects of the seasons than to overcome popular prejudice.

The only British fern likely to be even looked at as food is the Common Brake, of which the fern whose underground stem is eaten by the New Zealanders, is regarded by botanists as a mere variety. The former, in times of necessity, furnished the poorer inhabitants of Normandy with an ingredient used in the composition of their bread; and in Siberia and other northern countries it is sometimes used in brewing ale; one-third of the fern-root being employed along with two-thirds of malt. The Rev. M. J. Berkeley writes that, "Having had occasion to examine the rhizoma of our common Bracken, it became a matter of interest to ascertain what sort of food might be afforded by it. The result was a coarse but palatable food, perfectly free from any disagreeable flavour; much better, indeed, to my taste, and probably not less nutritious than cassava bread."

The young fronds of the common fern, when sprouting, and while quite young and tender, have been recommended to be used as a blanched vegetable, like asparagus; those of the male fern would probably give still greater satisfaction in every respect, *i.e.*, both as to size and flavour. Dr. Clarke writes—and his reasoning deserves serious attention—"The properties of ferns are tonic, antibilious, and decidedly deobstruent; and therefore a fern, if esculent, might be expected to be very serviceable as a change of diet to those labouring under dyspepsia and its consequences. And as we have no fern or other allied plants in use as articles of food, an esculent vegetable taken from a class of plants so widely different from all those at present cultivated, might be expected to be not without its advantages.

"The result of my inquiry, which was extended over six weeks, is entirely in the affirmative, so far as that the young fronds when completely blanched are an agreeable esculent vegetable, parcels of them having been sent as a new unnamed vegetable to parties who have all of them in return sent written acknowledgments to that effect.

"The young fronds should be cut as soon as they first begin to appear at the surface of the ground, and as low down as may be; and when quite blanched, boiled for one hour; but if tinged with green, for an hour and a quarter, or an hour and a half, the leafy part in the latter instance being rejected, and a sufficient quantity of salt added to the water to give the vegetable a slightly saline flavour. They, however, retain, when at all green, a somewhat harsh herbaceous flavour, not unlike that of tea, requiring some such sauces as are used with asparagus to give them a palatable flavour. But this may be expected to disappear if the plant is cultivated (it does not readily lend itself to culture), or even partially cultivated in its native place of growth; as in some fronds which had become completely blanched through sand having been thrown over a mass of the plant, it was scarcely or not at all perceptible, although they had become six or eight inches in height. The vegetable in this condition was considered preferable to garden spinach, and also to have a more beneficial effect on the digestive organs."

HOUSEHOLD PESTS.—II.

MICE (*continued from p. 19*).

Destruction of Mice in the Dairy.—To keep the dairy free from mice is a subject of no slight importance. Only those who have possessed dairies are aware of the woeful damage and loss occasioned by these pests. Rats have been described as being, to a great degree, instrumental in depressing the general welfare of mankind, and tending to bring on not only individual but national distress. If such be not an overdrawn picture—and it really may not be—unless every means were employed to free farms from such vermin—mice would play a not inconsiderable part in this human calamity. Their ravages in the granary and corn-stack will be afterwards described; but in the dairy they are well known to hollow out cheeses into shells; to burrow, as it were, into the flitches of bacon; to foul and destroy whole pans of cream, drowning themselves at length in some receptacle of this valuable commodity. There is more difficulty in getting rid of these little pests in the dairy than is experienced in the house, as, by reason of the continual abundant supply of provisions, no bait, however enticing, is sufficient to allure them into traps—a basin of water proves ineffective, as there is a plentiful supply of superior liquid; poison, too, maintains the objections which we have spoken of under "Destruction of Mice in the House," and thirst-giving compositions would be as likely to drive

THE HARVEST MOUSE.

them to pans of cream as of water, when they would most likely drop in and spoil the cream. The best method, then, remaining is to keep several cats for the dairy, not overpampered, but sufficiently well fed to prevent their wildness and the destruction of your dairy goods.

Destruction of Mice in the Barn, Granary, and Corn-stack.—It is scarcely possible to imagine the amount of damage caused by mice in barn, granary, and corn-stack. The lowest estimate of the amount of grain consumed by each mouse in a year is a bushel, and it destroys as much more as it eats. Now, when we consider that the thatch of a stack is often seen covered with mice, we may soon

guess the loss occasioned to the farmer, and the consequent increase in the price of corn. With regard to the barn and granary, the greatest safeguard is for the farmer to keep several ratting dogs, as it is very unusual for cats to be willing to live in any place apart from human habitations. The barn and granary should be built, as far as possible, upon a spot where there are no recesses or turnings in the drains, which serve for a harbouring-place; the barn must, nevertheless, be erected on well-drained ground. Mice are frequently introduced in the sheaves of corn, and make their way under the door into the barn and granary. Poison is of little or no use in the barn and granary, in which places, we need scarcely remark, that it would be useless to offer poisoned wheat, and mice are so well contented with grain, that it would be an unlikely thing for them to be tempted by poisoned fat or other animal substance. Fumigating has been adopted with success, but it cannot be said to be thoroughly efficacious.

With regard to the corn-stack, it is reckoned that if the stack be erected upon sufficiently high staddles, without hurdles, carts, stumps of trees, ploughs, or hay-ricks close to it, to serve for climbing, that mice will not infest the stack. This may be true to a great extent, but few corn-stacks are built in this way, and experience proves that the existence of mice in the corn-stack is far too frequent. They are frequently introduced in the sheaves of corn, and gain admission while the stack is being formed. Mice are not, like rats, necessitated to alight from the stack for the sake of drink, and unable to get back without a ladder. The dew and rain which fall on the stacks is amply sufficient for them, and they are constantly seen in the dry season on the thatch, drinking the dew-drops and catching the drops of water as they run down the straws after a shower of rain. It has been suggested that if a tent covering were fixed over the stack, so as to keep all rain and dew from falling upon it, that means would be effective in exterminating mice. This method is certainly worthy a trial, when the pest of mice renders every effort necessary.

The mice which frequent the barn, the granary, and corn-stack, are of four kinds—the common mouse (we have been describing), the harvest mouse (a representation of whose nest we have given on the previous page), the long-tailed field mouse, and the meadow mouse—all of which will receive treatment in a subsequent article.

GARDENING.—XXX.

THE VEGETABLE GARDEN (*continued from Vol. II., p. 350*).

The Gourd.—There are various kinds of this annual, but the best is the Mammoth, the fruit of which is used when in a young state for boiling whole, as a culinary vegetable, or for pickling purposes; and when ripe or nearly so, for boiling and mashing like turnips, or for thickening and flavouring soups. A light, rich loam is the soil it prefers, for it requires a similar treatment to the cucumber. Seed of this much-esteemed vegetable should be sown in a hotbed of moderate strength, under a frame or hand-glasses, at the end of March or early in April. In May they may be sown in the open ground, beneath a south fence, to remain; or in a hotbed, if at its commencement, to forward the plants for transplanting at its close, or early in June. The plants will be fit for transplanting as soon as they have got four rough leaves, or when about a month old. They may then be planted without any shelter on a hotbed, or in holes prepared as directed for cucumbers in the open ground. Some may be planted at the foot of fences, hedges, or walls, to be trained regularly over them, not only on account of their ornamental appearance, but because they are useful also as an edible, as already stated. They may be treated in every respect similarly to the cucumber, with this exception, that they do not require so much care. Abundance of moisture should be administered to them in dry weather; and as soon as the vines or runners have attained three feet, they should be pegged down at a joint, and covered with soil. This operation will cause the production of roots, and consequently the longer continuance of the plant or plants in health.

The Horseradish.—This is a hardy perennial, the leaves of which are large, oblong, sometimes smooth, and at other times notched at the edges; on the stem they are sometimes pinnatifid. The flowers, which appear in May and June, are white, and are in loose panicles. The root, scraped into shreds or shavings, is a well-known accompaniment of roast beef. It is also used in salads in winter, and in sauces, and sometimes eaten raw. An open situation and a deep, soft, sandy loam, neither very dry in summer nor wet in winter, suit the horseradish best. The ground should be prepared in the autumn, by trenching three feet deep, leaving the trench open till spring. In February procure the sets; these should be the strongest crowns or leading buds from old plants, and about an inch long. Then begin at the end where the trenching was left off, and level the bottom of the open trench, and plant the sets nine or ten inches apart each way, with their crowns upright; then dig another trench two feet wide, as in the common way of trenching, turning the earth into the first trench over the row of sets, and then plant another row, and so on till finished. The bed must be kept clear from weeds all summer, and in autumn it must be cleared of the leaves. The roots will be fit to take up for use the following autumn; they must be taken up by opening a trench at one end of the bed to the bottom of the roots, so that they may be removed entire and sound, which will cause them to be superior both in size and quality. A few roots should be dug up on the approach of frost, and preserved in sand for use in winter, as they would otherwise be made fast in the ground.

Hyssop.—This is a hardy evergreen under-shrub, rising from a foot and a half to two feet high; the leaves are lance-shaped, short, and rather obtuse. It flowers from June to September, and the flowers are blue. The whole plant has a strong aromatic odour. The leaves and young shoots are used as a pot-herb, and the leafy tops and flower-spikes are cut, dried, and preserved for medicinal purposes. There are three varieties of this plant, the white, the blue, and the red flowered, but the blue is the one most cultivated. It may be propagated either by seed, slips, or cuttings; if by seed, it may be sown in March or April, either broadcast or in drills eight inches asunder. The plants will soon be up, and must be transplanted either into beds or as an edging; they must be planted a foot apart, and watered directly after planting, and occasionally in dry weather, until the roots get hold of the ground. Cuttings from the stalks are to be planted in April and May, in a shady soil, where they will soon take root and grow freely. Young slips of the same year may be taken from the old stock in July, and planted in a sandy soil in a shady situation, and if kept moist by watering, will strike root and grow freely.

The Leek.—This is a hardy biennial, the stem of which, rising three feet high, is leafy at the bottom, and the leaves are an inch broad. It produces its flowers in May, which are close large balls, of a purple colour. The whole plant is used in soups and stews, and the stem, when blanched, is much esteemed. There are several varieties in cultivation, namely, the Large London, the Musselburgh, the Scotch or Flag, the Flanders, &c. The first two are by far the best; the third is larger and hardier than the former, and, consequently, grown mostly by those who have little or no time to devote to the bettermost kinds; and the fourth is, in our estimation, as good as any for all ordinary purposes. The largest leeks are grown

on a light, rich soil, lying on a dry subsoil, a rank soil being very unfavourable to it. When it is found necessary to manure ground for leeks, it should be done a considerable time previous to sowing, and the ground dug several times over, in order to incorporate and pulverise the soil and manure, the latter being well rotted beforehand. A compost of well-rotted dung and sandy loam, or road-drift, will suit the leek well; but in either case the ground should be dug in autumn or winter, and that two or three times over, as previously advised. Sow the leek on beds five feet wide, scattering the seed pretty thick, and rake it in evenly. Sow a little seed the latter end of February, provided the weather is favourable, and the ground in a dry state, for a small crop to come in early; but make it a general rule not to sow the principal main crops till the first week in April at the earliest, and a smaller successional crop the first week in May, for winter and spring use. When the plants are three or four inches high, weed and thin them where too thick and crowded, and give them plenty of water frequently in dry weather, to forward them for transplanting from June to August, or when they are from six to ten inches high. Plant in trenches, the same as recommended for celery, preparing the trenches some time before planting. Choose an open situation, and dig out trenches about fifteen inches wide, eight inches deep, and thirty inches asunder, placing the soil so taken out in the spaces between the trenches, and fill them in, about six inches deep, with the compost above-mentioned, in which the roots will grow to a very large size. The ground being ready, thin out a quantity from the seed-bed, giving the bed a good watering, if the weather is dry, in order to loosen the roots in the soil, otherwise, if the ground be rather baked at this season, they will be liable to be broken off close to the bottom of the plants, which will weaken them very much. Trim the root-fibres to an inch and a half long, and slip off any long and weak leaves close to the root, not cutting off the tops, as is usual, in which case they never grow any more, at least not so as to do any good. Plant a single row in the centre of each trench, setting the plants six inches apart, inserting them in the ground nearly to the leaves with a dibble or dibber, press the soil down close to the fibres, and give them a good watering immediately, continuing the operation frequently until they get good hold of the ground. Keep them clear of weeds, and as they advance in growth, hoe the soil up to the plants on both sides to blanch, the same as celery, until they are full-grown: they will thus produce very large roots from September to May. Take up a quantity in autumn, or on the approach of frost, and preserve them in sand. In order to procure seed of the leek, some of the largest plants should be transplanted in February or the beginning of March, into an open situation, and where they can have every advantage of the sun. They will run up into single tall stems or seed-stalks, and produce ripe seed in September or October. They must be supported by stakes, or otherwise they will break down under the weight they will necessarily have to carry. When the seed is ripe, it must be cut and tied in bunches, to dry and harden the seed thoroughly, when it may be put in paper or other bags, and hung up in a dry place till wanted.

The Lettuce.—This is a hardy annual with large milky leaves, frequently wrinkled, of a very pale green generally, but varying much in form and colour according to the variety. This is a much-esteemed salad herb, and is also used in soups. The varieties of this plant are considerable; but we shall only enumerate those commonly cultivated, or, we should rather say, such as are likely to prove the most useful for ordinary purposes, namely:—Of the Cos kinds we prefer the Black-seeded Green, the Brighton, the Early Egyptian, Green and Brown Silesia, White Paris, and the Brown or Bath; of the Cabbage varieties, Hammersmith Hardy Green, Brown Dutch, Common White Dutch, and the Neapolitan. In their growth all the Cos lettuces have an upright habit and oblong shape. The Cabbage lettuces are round-leaved, growing close to the ground. Both have close, firm heads when at maturity, but they are sometimes used in open young growth. The Cos lettuce is the most esteemed as a salad, but the cabbage kinds are preferable for soups; the Silesia is esteemed by some, but is not cultivated as it formerly was. For the summer and autumn use, all the Cos kinds are suitable, and next to these the Cabbage varieties. Such sorts as are backward at running to seed should be reserved for the end of summer, such as the Hardy Green Hammersmith and the Brown Dutch. For a late sowing, to stand the winter, for early spring use, the White, the Green, and the Black-seeded Cos. This plant is raised from seed, which grows freely on a light, rich soil lying on a dry subsoil. Some people, in order to increase their supplies throughout the summer, sow it among other crops, such as onions, leeks, carrots, and radishes, and where ground is scarce it may answer; but we are averse to all such makeshifts where there is no occasion, and consequently where ground is at the will of the cultivator the principal crops will be better—far better—on ground set apart to itself, each root being sown by itself and kept separate.

For good summer and autumn crops of lettuces, sow once a month, from the beginning of February to the end of July; and for late autumn, winter, and following spring crops in August and September. All autumn, winter, and spring crops should be sown on a warm south border, well sheltered; but for a summer crop an open situation will be found much more suitable. After digging the ground well, and breaking it fine, sow the seed broadcast, and rake it in even and fine; in dry weather give a little water, keeping the ground moist until the plants come up, and if the dry weather continues, the watering may be continued occasionally also. When they have advanced two or three inches high, thin them out from a foot to fifteen inches asunder every way; and of those so thinned out, plant a quantity on good rich ground, at the same distance, observing to take off a few of the lower leaves and the ends of the roots, and plant them with a dibble, inserting them pretty well in the ground, and giving them a little water until they have taken fresh root. When they are about three parts grown, and the inner leaves begin to turn in or lap, they may be forwarded by tying the leaves moderately close together with strips of bass, or they will lap or heart without this assistance. Thus managed, the first crop will come in about the first or second week in May, and continue in succession until the autumn. In the month of October transplant a good quantity of the September-sown plants out of the seed-bed on a dry sheltered situation, three or four inches apart, to continue for winter and early spring use. At the same time transplant a quantity close together into frames or under hand-glasses, that they may be protected in frosty and bad weather. Should there be a deficiency of frames, a quantity may be planted very thick, so as to be arched over and covered with mats, as a preventive against the ravages of frosty weather. Such plants as are planted for protection in winter, must have abundance of fresh air at all favourable opportunities—that is to say, fine weather; and in the middle of the day, when the sun is upon the plants, the glasses may be taken quite off; but must be put on again early in the evening, and kept close at night and in all bad weather. When all danger of frost is over, crops planted thick in frames and borders, which have survived the winter, should be thinned out to eight or ten inches apart, and the plants so taken out must be planted in another compartment at the same distance, and thus the table will be supplied till such times as the spring-raised crops come in.

TO MAKE NETS FOR FISHING AND GARDEN PURPOSES.

As it is often useful to know how to make nets either to preserve fruit-trees from the attacks of birds, for fishing, or for other purposes, we give a short account of the way of making these articles.

Two wooden tools are required for the purpose. One, marked A in the engraving, consists of a piece of thin flat wood like a ruler. The other, marked B, is a similar piece, with its extremities shaped something like a two-pronged fork. The first is called the pin, the other the needle. To weave the net it is first necessary to attach a loop of strong cord, C C, to a nail, or other fixed support. This cord is called the foundation.

A quantity of the twine we intend to employ is then wound lengthways on the needle, as shown in the cut. One end of this twine is then to be attached to the loop, D, and the pin is taken in the left hand, between the thumb and the two first fingers, and placed under the twine close to where it is tied to the foundation. The needle, being held in a similar manner in the right hand, is passed under and round all the fingers of the left hand except the little finger. This being done, the twine must be kept in position by the pressure of the thumb of the left hand against the front of the pin. The needle is then passed back again around the pin, so as to form another loop, this time encircling the little finger. The needle which is now in front of the pin must be passed under the first loop, between the pin and fingers, through the foundation loop, and over that portion of the twine that passes back from the thumb, to make the second loop. The needle is then held by the left-hand fingers, while the other hand is brought round to bring it through. This being done, all the fingers of the left hand are to be removed from the work except the little finger, which must still retain the loop by which it is surrounded. The work must now be raised to the pin by means of the little finger, and the knots thus made secured to the foundation; as many loops are thus formed as are required for the width of the net. As soon as the pin becomes full, it is pushed to the right hand, some of the loops formed on the left-hand side being allowed to fall off. When one row of loops is completed, the pin is taken out, and the work reversed, so that what was the right-hand end of the net is now the left. The reason for doing this is, that the person making the net may still be able to work from left to right without cutting the twine.

IMPLEMENTS, ETC., FOR NET MAKING.

The new row of meshes is formed in the same manner as the first, with the exception that, in forming each loop, the twine must be carried through the corresponding mesh of the first row instead of through the foundation.

In Fig. 2 a representation is given of the kind of knot by which the loops of the net are fastened. Fig. 3 gives an enlarged view of two rows of meshes.

When all the twine is used from the needle, another supply may be wound on it, the ends of the old and the new twine being fastened together by a weaver's knot, represented in Fig. 4.

It is advisable, in making nets, that the knot of each mesh be drawn equally close by the little finger, otherwise they will be of unequal size.

ARTICLES FOR GIFTS AND FANCY FAIRS.

Many pretty fancy articles can be made from scraps of ribbon or silk and satin, with the addition of pins, beads, and spangles. Paper spangles are the kind to be used in the articles now described, and can be bought in penny packets at toy shops. Red gold and bright gold spangles are wanted; and a few old playing or writing cards.

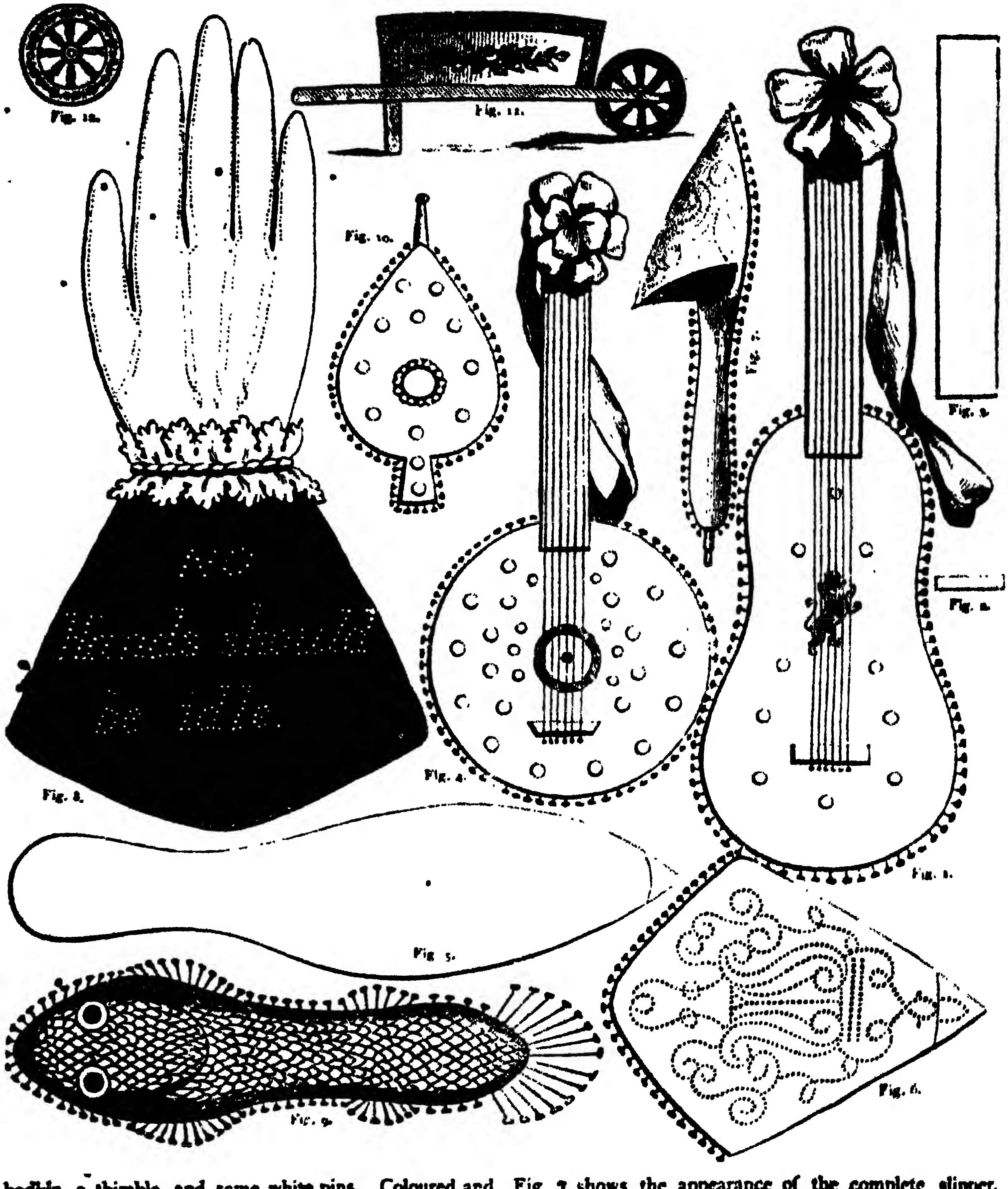
The Guitar.—This is a particularly pretty little article. The materials required are a little piece of light, bright-green satin, a very little bit of black gros-grain silk, or ribbon; green, black, and pale yellow, fine sewing-silk; and a little narrow, white, sarcenet ribbon; a few gold and red spangles, some small white pins, and a gold lion of embossed paper, which can be bought where the spangles are sold; also some thin card and a little gum. From the card, cut two pieces like the body of the guitar. Cover these with the green satin, by tacking it one end to the other, across the wrong side. Cut a little piece of card, like Fig. 2; cover it very neatly with black, and stitch it to one piece of the body, as the bridge shown in Fig. 1. It must be stitched upright, on end. Cut two pieces of card, like Fig. 3; cover each with black silk, stitch one to the upper piece of the body of the guitar, with invisible stitches. Then with the yellow silk imitate the strings, beginning just beyond the bridge, carrying them over the bridge, up to the top of the back piece. Before putting on the strings, fix the lion in the centre, and the red and gold spangles round it with thick gum, made by melting a little with water, in an egg-cup, by placing it in the oven or on the hob. Neatly stitch the second black piece to the other part of the guitar body. Then sew the two black pieces neatly together with black silk, uniting the tops, and with green silk sew the two pieces of the guitar together. Make a loop of white sarcenet ribbon at the top of the black part, and cover the join with a handsome knot of white bows. To complete it, stick small white pins around the body of the guitar at the edges, between the stitches of the sewing. The colour may be varied, but green is the most effective. The illustrations are of the correct size.

A Mandoline.—Fig. 4 is a mandoline, or banjo. For the latter instrument the round may be smaller. The materials are a little bit of white satin, a little bit of red, some black gros-grain, some narrow, red satin ribbon, a pennyworth of spangles, white and black and yellow sewing silk, and some small white pins; also a little cardboard and gum. Cut two rounds the size of that in Fig. 4, and two straight pieces by the same illustration. Cover both of the latter on one side with black gros-grain. Cover the rounds one with white, the other with cherry-coloured satin, each on one side only. Cut a bridge for the mandoline as for the guitar; cover it with black, and stitch it on. Paint a circle on the white satin to form the hole in the centre, or make it of spangles. Gilt circles can be bought in paper as well as gilt lions. Gum the spangles round the circles. Stitch on one of the black pieces, and then form the strings of the yellow silk. Stitch the other black piece to the red circle. Stitch both black pieces together, and then the circles together with white silk. Stick pins all round the circle only, and make a

loop of cherry ribbon, and a handsome knot of bows at the top.

The Turkish Slipper.—Materials: a little cardboard, a couple of old playing or visiting cards, some white silk, coloured satin or velvet, gold and white seed beads, a bodkin, a thimble, and some white pins. Coloured and white sewing silk. Cut in card two pieces of the shape of Fig. 5. Cover each on one side with white silk, and sew them neatly together, leaving a space at the end to insert the bodkin. Cut one piece of very thin card, the shape of Fig. 6. Cover one side with coloured satin or velvet. Work on the pattern in gold and crystal seed beads. Cut white silk the same size, tack it on as a lining, turning a little bit in all round; sew it all round. This finished, make the toe of the slipper. Sew the two long sides of the toe that come to a point to the two sides of the toe part of the sole. Fig. 7 shows the appearance of the complete slipper. Put in the bodkin in the way indicated, and stick small pins, such as the haberdashers use for ribbons, all round the edge of the sole and edge of the front of the toe. Fit the thimble into the toe.

Hand Penwiper.—Materials: a piece of new white



card; stout, such as London board, a little piece of black velvet and any fancy material; a little white blond lace, passementerie, chalk seed beads, and black sewing silk. Cut the hand out of the white card. Dot on the glove seams with pen and ink, or omit them. The card is cut a little longer than what is shown in the illustration, Fig. 8, to allow the penwiper to be attached. Cut the shape of the cuff in two pieces, either both of black velvet, or one of velvet and one of fancy material for the wrong side. Work on the motto, "No hands should be idle," to the black velvet with chalk beads. On the wrong side stitch the two cuff pieces together, and turn them. Before attaching them to the hand, cut four pieces out of fancy material a little smaller, and notch the edges. Sew these first to the hand, and the ornamental piece over them. Then run on two pieces of blond lace, one each way at the wrist of the hand, in the way shown in Fig. 8, and between them place a row of passementerie.

Fish Pincushion.—Materials: a small card, a little bit of grey silk, a little bit of Brussels net, a few pins, and a bit of wadding. Cut two cards, the shape of Fig. 9; cover each on one side with grey silk, tacked across the back from edge to edge, every way straining it tight. Colour on one side with Indian ink; draw the eyes, rings round them, the nostrils, and the division of the head. Cover both pieces with white net. Sew the two together; when one side is sewn, put a little wadding between. When nearly sewn all round, stuff in with the scissors more wadding, if wanted. There should be enough to make the fish look as plump as a real one. If a little powder scent is put in with the wadding it is an improvement. Put on the fins and tail with pins in the manner shown in Fig. 9, and between them, all round the fish, place pins close in.

The Bellows.—Materials: card, some silk or satin, some spangles, a bodkin, pins, and sewing silk. Cut two pieces of card, the shape of Fig. 10; cover each on one side with silk or satin—both look best alike; sew them together. Leave open a space for the bodkin, which forms the nose. On the right side fix spangles with gum, a circle in the centre, and the rest dotted about. All round the edge, between the sewing, place pins.

The Wheelbarrow.—Materials: card, coloured ribbon, gold paper, and water-colours, a little bit of wire, wadding, scent, gum, and thick white muslin; or card, white ribbon, coloured satin, wadding, scent, gum, a bit of wire, and thick white muslin. The first way is to cut the sides, handles, and the legs of the barrow from Fig. 11 in one. Cut two of these. Cut out the wheel by Fig. 12. Cover each side with satin; the legs and the handles must be lined with white ribbon, and the sewing very neat. Cut two pieces of card the size of the side of the barrow. Cover each on one side with white muslin. Stitch to one of these, all round, the white ribbon, which should be half an inch wide. Stitch the other piece to the other side of the ribbon. Gum the ribbon very neatly in the part of the pincushion between the legs. Before completely sewing the ribbon to the last muslin-covered side, stuff with wadding, scented. Very strongly gum the two sides of the barrow, covered with coloured satin; place them each side of the pincushion, and under gentle and equal pressure for twenty-four hours. Then fix the wheel in its place, with a bit of thin wire, crooked at both edges. The second way is to cut the sides, legs, and the handles, each as one piece as before, from London board. Edge the sides with gold paper, and cover both sides of the handles, legs, and shafts with it. Draw roses or other flowers on the sides of the barrow, and colour them. Make the pincushion as before, but of coloured ribbon, and gum on the ornamental sides of the barrow in the same way, and press it. Draw a wreath of flowers round the wheel on both sides, and gild the spokes of the wheel. Fix it on with a wire.

DOMESTIC MEDICINE.—XXXIV.

GOUT (*concluded from p. 24*).

Treatment.—Though an acute attack of gout is too painful and serious an affair to be treated by domestic means alone, the domestic management of the disease is a matter of very great importance. The description of the causes of gout which we have already given will afford the best clue to means for preventing the attacks of the disease, and moderating them when they do occur. A man who inherits the tendency to gout cannot alter the fact of his inheritance. But let him remember that he only inherits *the tendency* to the disease—not the disease itself, and that it rests greatly with himself whether the tendency is to be encouraged, until the disease itself is provoked, or discouraged and thwarted, until the tendency to the disease is almost lost. Moderation at table; active employment of body and mind; if not a habit of teetotalism, then the avoidance of port and sherry wines and malt liquors; the use of warm flannel to well cover the body in winter; and the avoidance of worry and excessive work, are matters of prime importance. By way of habitual drink, if cold water cannot be taken, claret, or a little very weak brandy and water, or whisky and water, may be allowed. It is amazing how many people drink beer and porter till they make themselves not ill, but less healthy—stout, bilious, heavy, less nimble and bright than usual, constipated, without appetite. There are few greater delusions than that rich and strong beers are strengthening. Suppers should be light and simple; and, occasionally, the good Catholic custom of a fish dinner may be practised with great advantage. Much care should be taken by those who have not themselves suffered from gout, but whose fathers or grandfathers have. It especially behoves men to take this precaution, as they are much more liable to attacks of gout than women.

When the gout has really begun, we presume that a medical man will be called in. For the benefit of those who are beyond the reach of this advantage, we may give a prescription or two. If there is any constipation or tendency to it, half a tumblerful of Friedrickshaller water, with as much hot water, may be taken before breakfast, or the following draught may be taken:—

Powdered rhubarb	... ...	1 scruple.
Magnesia	... ...	1 scruple.
Peppermint water	... ...	1½ ounces.

Best taken in the early morning.

The following mixture will tend to counteract the gouty matter in the blood, and to expel it from the system:—

Bicarbonate of potash	...	1 drachm.
Spirits of nitre ...	... ...	2 drachms.
Water ...	... ...	8 ounces.

Mix. A sixth part to be taken three times a day.

This is especially indicated if the urine is scanty and thick, depositing red or pink sand.

Colchicum is a remedy with a great reputation for relieving gout quickly. We have not prescribed it, for the reason that it is a kind of remedy that should only be taken under medical advice. It has been rather too much used in gout—that is to say, it has been too much relied on, and diet and other medicines have been comparatively neglected.

The diet is of the greatest consequence. During the acute stage the appetite will be poor and the tongue furred. Solid food cannot be taken, and for a day or two mutton broth or beef-tea should form the principal part of the diet. Then a little fish may be taken for dinner; and, gradually, as the pain declines and appetite returns, the natural food of the patient may be resumed. If the patient is very faint from pain or sleeplessness, a little very weak spirit and water may be taken. Sleep and

protection from pain at night will be often effected by the following simple prescription :—6 or 8 grains of Dover's powder at bedtime, in gruel.

Another point is the management of the affected part. No cold applications should be allowed. Even cold air should be kept off the foot. The foot should be wrapped in cotton-wool, raised up from the ground on a stool, if the patient is not lying in bed, which will be the best course if he is much out of sorts and the weather is at all cold. Occasionally relief will be given by poppy-head fomentations to the toe, followed by wrapping it in cotton-wool.

Chronic Gout.—The treatment of chronic gout is more difficult of popular statement. All the above precautions of diet and habit should be taken, especially as regards the avoidance of port wine and malt liquors, and excess of animal food. Where the purse will permit of it, a visit to Vichy, Bath, Buxton, Cheltenham, Harrogate, Matlock, or other medicinal waters, may be tried, and, if found to answer, should be repeated.

PIGEONS.—I.

VARIOUS BREEDS—NATURE AND HABITS OF THE TAME PIGEON—DOVE COTS.

THE keeping of pigeons as a part of rural economy is less regarded now than formerly. The dove-cot was, a century ago, the constant accessory of the mansion and of every farmhouse of importance, which no longer continues to be the case. This comparative neglect of the pigeon may to some extent be attributed to the improvements which have taken place in agriculture. When corn was sown broadcast, and the use of the hoe unknown, the services of the pigeon in eating the seeds of injurious weeds, more especially those of the charlock, were highly valued. The farmer now keeps his corn hoed clean, and does not need the assistance of such a labourer; and the pigeon can no longer be maintained so cheaply; in fact, in the absence of a supply of his favourite food (for he prefers small seeds to grain) he commits considerable ravages on crops and corn-stacks. In short, he is now found less profitable than of old. Still, we believe from our own experience, and the opinions of the best authorities, that a well-managed dove-cot may yet be made to pay. Granting the pigeon to be a most voracious bird, it is to be urged in his favour that in a state of liberty he will purvey most of his food for himself, and though some of it may be stolen corn, a great part will be worse than useless seeds, scattered grain, green leaves, and even grubs, and that when allowed his liberty his management demands less care and trouble than that of any other domestic animal. Young pigeons bring higher prices than formerly, and a well-stocked dove-cot will yield a handsome profit in the course of a season, whilst the cottager, or other person who keeps a few pairs only, may with little cost or trouble, secure a frequent and palatable addition to his bill of fare by their means.

Apart from the more serious question of profit, there are, we imagine, few persons so devoid of all sense of sympathy with their feathered fellow-creatures as to feel no interest or delight in pigeons—the ease with which they may be placed on the most intimate terms with their master, their variety and beauty of shape and plumage, the tenderness of their voices, their absurd antics and small vanities, their struttings and love-makings, all combine to render them an endless source of amusement and pleasure to every properly organised mind. No country house, or, indeed, any house where pigeons can be kept is, in our opinion, complete without them.

Of the keeping of fancy pigeons specially, we do not propose to treat at length. As much and perhaps more real pleasure is to be derived from the commoner kinds, and to most persons they will prove of greater profit. Unless they are made the chief object of life, fancy pigeons can scarcely prove remunerative. Pigeon fanciers are not, perhaps, as a class, the most elevated in the social scale, and it is possible that many readers of the HOUSEHOLD GUIDE would not care to be included in the fraternity. Fancy birds cannot be allowed that perfect liberty which we think essential to their own as well as their owner's happiness; and they are more subject to diseases than common ones; the points which constitute their value are in many cases merely arbitrary peculiarities, in some absolute monstrosities, and generally, though not always, apart from real beauties; added to which some kinds of fancy birds are deficient in moral qualities, and are bad nurses of their young. Still, since it is necessary that the pigeon-keeper should know what those points are which constitute value with fanciers, we shall describe the chief varieties and point out their distinctive characteristics.

Our Native Wild Pigeons and the Origin of the Domestic Breeds.—Our English wild pigeons are of four kinds:—The Wood Pigeon, also known as the Cushat, Ring-dove, or Wood-quise, is a very handsome bird, and somewhat larger than the domestic pigeon. Wild in its nature and habits, it shuns man and his dwellings, and is with difficulty taken by the sportsman. Its nest is a few sticks carelessly laid together, commonly in the fork of some tree, and so thin that the eggs or young may frequently be seen through it. Naturalists tell us that it breeds twice a year; but, as the nests are to be found from April to September, it seems probable that it does so a greater number of times.

The Turtle-dove is the smallest of British pigeons. It is a summer visitant only, its winters being spent south of the Mediterranean. Among the pleasant sounds of spring few are more delightful than the low, purring voice of the turtle. It is a shy bird, and builds in thick woods and lonely places.

The Stock-dove is of about the same size as the common pigeon, and is erroneously supposed by many to be the parent of the domestic varieties, an illusion which may be dispelled by even a superficial examination of the bird and its habits. In conformation it differs widely from the domestic pigeon, and commonly builds on an ivy stump. It shows much attachment to the place it selects for its nest, and the writer has known a pair breed for many successive years in the same tree, although the young were invariably taken. It may, to a certain extent, be tamed if taken young, but never domesticated.

The Blue Rock Pigeon which abounds on many parts of our own coasts, as well as those of other European countries, is undoubtedly the original of the tame bird, and all its various ramifications. With the common dove-house pigeon it appears to be almost or quite identical, and it is said that if a dove-cot be built and stocked in a neighbourhood frequented by the wild rock pigeon, many of them will leave their former dwellings in the cliffs to occupy the more commodious abodes made for them by man; and from the ordinary dove-house bird, the transition to the other tame varieties, under man's care and selection in breeding, appears sufficiently easy.

Nature and Habits of the Tame Pigeon.—The tame pigeon, like all the wild members of the family, lays two eggs, neither less nor more, and these usually produce a male and a female. The period of incubation is seventeen days. The conjugal fidelity of all the family is proverbial, and the male bird shares the duty of sitting with the female. The hen remains on the nest during the night and morning, and in the afternoon while she flies abroad for air and exercise the cock takes her place, besides which he commonly supplies her with food and water from his crop while she is on the nest. The young pigeon, when first hatched, is one of the most helpless

little creatures (human babies always excepted) to be found in animated Nature. For some days previous to hatching, the crops of the old birds have been filling with what pigeon-keepers call "soft-meat," which consists of partially digested food, and is analogous to the milk of mammals. The parent puts its beak within that of the young bird and throws this food into its throat. This office is performed alike by both male and female, and is not, as in quadrupeds, confined to the latter. In some unexplained manner the pigeon is able to throw up this "milk" (which, however, more closely resembles curd) without any admixture of common food, and it does so for the first seven, eight, or nine days, at which time the supply gradually ceases, and ordinary "hard food" is by degrees injected in its stead; the feeding with hard food is continued till the young are capable of picking up for themselves, which will be at about five weeks old. While fed with soft food the technical name for the young pigeon is "a squab," afterwards it is known as "a squeaker" till it reaches the full dignity of pigeonhood, and is capable of pairing, which is at the age of six months. The number of broods to be reared from a pair in the year will generally be about six or seven; it is possible by the use of stimulating food, such as hempseed, to secure as many as twelve, but this can only be done at the expense of the constitutions of the birds.

Fig -

The Dove-cot and Pigeon Boxes.—A good roomy dove-cot is, whenever practicable, to be preferred to boxes, as being warmer in winter and cooler in summer; for the same reason of preserving an equal temperature, the roof should be ceiled, more especially if it is formed of ordinary blue slates. "A dove-cot," says a late eminent authority, Mr. Charles Waterton, "ought to be well lighted, and it should be whitewashed once every year. The tillage which it produces may be removed early in November, and again at the end of February. The young of the dove-cot pigeon, like all others of the columbine order, are reared in a nest lined by their own dung, which if left in

the hole after the birds are gone is apt to harbour vermin. No dove-cot can possibly thrive if rats have found an entrance into it. They will destroy every young pigeon within their reach. They must be ousted, and their return precluded at any cost. The barn owl and starling are harmless, unoffending visitors; they come merely for shelter or a breeding place."

If the dove-cot is a building specially raised for the purpose, the breeding holes are usually contrived in the thickness of the walls; but a good dove-cot may be constructed in the gable of a stable or other out-building, or in the space between the sleeping-rooms and roof of a house. (Fig. 1.) In this case wooden cells will be necessary. They should be shelves twenty inches wide and twelve apart, with divisions between at every three feet. Strips of wood three inches broad should run along the fronts of the shelves to prevent the eggs and young from falling off, and the three feet compartments should be subdivided by pieces of the same width, so that each pair of birds may have two nests, and the young,

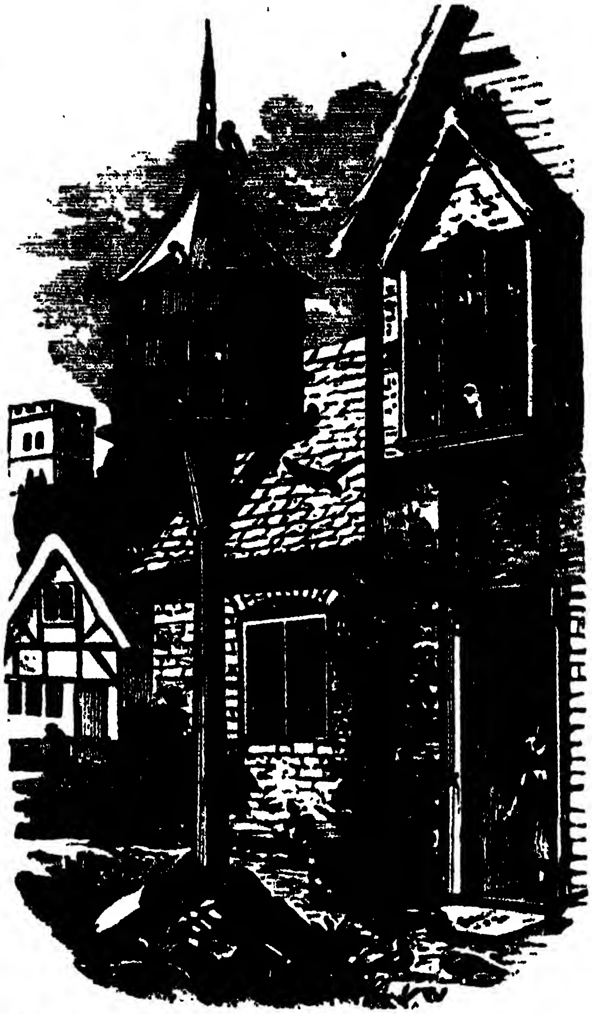


Fig. 2.

which are being reared in one, may be prevented from disturbing the mother, who will be sitting again in the other compartment; for the hen will frequently lay again in a fortnight after hatching. Some persons place a pan of unglazed earthenware or a straw basket within the cell to serve as a nest, others only a little straw or hay; we do not recommend the latter, as it is apt to breed vermin. The strips which run in front ought to be removable, to admit of cleaning the nests, which should always be done when the young birds are taken. In arranging a dove-cot of this description, care should be taken to place it in a gable facing to the south or some other warm quarter; the pigeons love to sun themselves at the entrance to their house. Outside the apertures by which they obtain ingress and egress ledges should be fixed on which they can alight and disport themselves, and carry on the chief amusement of pigeon-life—flirtation; and a trap should be arranged by which these apertures can be closed at pleasure and the birds shut within. The dove-cot should always be visited for the purpose of

Fig. 3

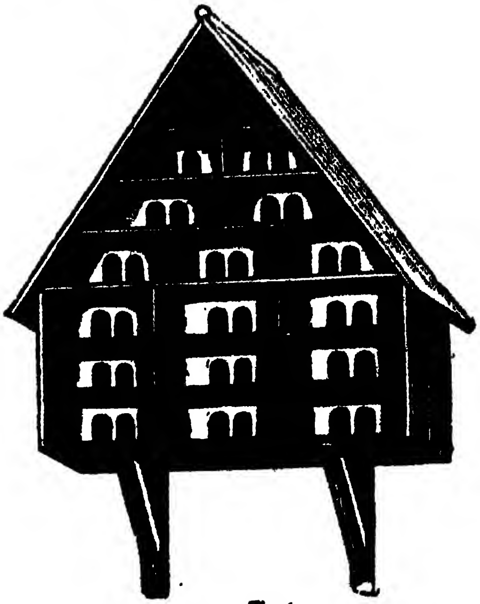


Fig. 4.

taking the young birds in the morning; if it be done late in the day the old birds are alarmed, and sometimes remain outside all night, in which case the eggs of sitting birds get cold and are spoiled.

Pigeons are less likely to forsake a large dove-house in which many birds are kept than a small one. Small flights frequently go off to join larger ones, but the reverse is rare. No means should be neglected of attaching the birds to their home. Pigeons are said to be fond of strong scents, such as assafœtida, and it is held a good plan to sprinkle the floor with that or some other strong odoriferous substance before stocking a dove-cot. A method much in vogue with fanciers to keep birds from straying is the "salt cat." Formerly a real dead cat was salted, spiced, and roasted for the purpose; upon this the modern practice is a slight improvement, but is still sufficiently disgusting; the following is an approved receipt for making it:—Take half a gallon of gravel or sand, half gallon of rubbish from an old wall, a quarter of a pound of aniseed, a quarter of a pound of saltpetre, and a handful of common salt; knead into a stiff paste with stale chamber-ley, and put it into earthen vessels with holes in the sides through which the birds can peck out the compound. Many persons will be too fastidious to use this; in that case they should provide its chief constituents, the lime and salt, in a box for the benefit of their birds. To have a hopper, which can be filled with corn outside, which may run through into a trough within the dove-cot is also to be recommended; and especially that plenty of clean water should be provided, if the birds are ever shut in, or the cot is in a position where they cannot readily provide drink for themselves—indeed it is good in all cases for the benefit of sitting birds. The drinking-vessel should be one which will not allow them to foul the water with their dung. A proper pigeon-fountain to hold a gallon may be bought at earthenware shops for two shillings; or a good substitute may be provided by taking a large bottle with a longish neck and a small flower-pot saucer. Fill the bottle to the brim, and hang it, corked, mouth downwards, over the saucer, so that the nozzle shall almost, but not quite, touch the bottom, then half fill the saucer with water, and remove the cork. While any water remains in the bottle the saucer will stand full, but will not overflow.

Fig. 5.

Where the inhabitants enjoy full liberty, the above advice as to cleanliness in the dove-house will be sufficient; but whenever it is necessary that the birds should be generally confined to it, further precautions must be adopted or vermin and disease will result. The droppings should be swept out every morning, and clean gravel or sand be strewn over the floor, and a shallow pan of fresh water should be given daily in which the birds can bathe.

Next best to the dove-cot in point of comfort, but far inferior to it, are boxes fixed against walls. The wall selected should have a south or south-west aspect, and the boxes should be placed high enough to be secure from cats, rats, and vermin. The boxes should consist of shelves from 12 to 15 inches apart, divided into cells 18 inches long and 12 deep, closed at front, with the exception of a sufficient doorway, which should be towards the end rather than in the centre, that greater privacy may be secured for the nest. Above, the boxes should be well protected from driving rain by projecting weather-boards, and in front of the doors should be ledges of such width as will permit of the birds alighting and walking with ease. Two cells should be allowed to each pair of birds, and the promenade in front of the two dwellings should be rendered private by vertical strips of the same width as the ledge, as shown in the illustration; if this is not attended to, there will be endless battles. A good form for wall-boxes is shown in Fig. 4. The boxes should be painted white inside. Figs. 2 and 5 show forms of dove-cots which we shall more fully describe in our next article.

BREAD-MAKING.

In treating of this important subject, we propose, in the first place, to speak of the nature of flour, its various qualities, and the means of distinguishing good from bad; we shall then briefly explain the theory of baking, with the various methods in use for rendering bread light; and give useful receipts for making and preserving yeast and its substitutes. Afterwards will follow simple and practical directions for family baking; and we shall conclude by speaking of the various substitutes for flour, and the processes by which it is possible to make good bread from flour of inferior quality.

In various countries various materials have been and still are used in the making of bread. Not only have all the many kinds of grain been employed to form the basis of it, but also a large number of the other vegetable substances in which farina or starch is found. We, in England, have, however, almost wholly adopted wheaten flour as its main ingredient, as is also the case, among those classes who can afford to purchase it, in most civilised countries. This preference given to wheat is not merely founded on the fact that it is more agreeable to the palate than other grain, but also to its containing a larger amount of nutriment.

The different kinds of corn consist of two principal ingredients, farina or starch and gluten. Of these, the latter is by far the most highly nitrogenised and nutritive. Among corn, wheat contains by far the largest proportion of gluten, and is therefore the most valuable as food; but the relative quantity of it, and the consequent nutritive value, vary widely in different samples of wheat. As a rule, the farther from the Poles the wheat is grown, within the temperate zones, the better will be the quality, but much will also depend upon soil and season. Vogel's analysis gives in 100 parts of wheat flour 64 of starch and 24 of gluten; but later analyses have shown that the average proportion of the latter may be placed still higher.

Three qualities of flour are ordinarily prepared for bread-making. *Best flour* or *firsts*, which consists of the finer parts of the best wheat only, sifted out after the first grinding, and wholly freed from bran. This is used for making French and other delicate kinds of bread. *Seconds* is composed of those parts of the wheat which have been sifted from the firsts, re-ground* with other wheat and almost wholly freed from bran. This, with an admixture of more or less firsts, is used in making ordinary bread. To form *thirds*, or *household* flour,* the coarse parts left in dressing the seconds are re-ground, together with inferior corn, and in this rather more bran

This is sometimes mixed with the finer qualities, or is baked separately, but, of course, makes a lower description of bread. The brown bread sold in the [illegible] consists of firsts, seconds, and *whole meal*, which is undressed flour as it leaves the mill-stones after the first grinding, and which, therefore, contains bran and coarse particles. The brown bread of farmhouses is flour once ground and deprived of the coarser parts of the bran. Much was said, some years since, on the absurdity of depriving flour of its bran, and of taking from it what was declared to be its most wholesome and nourishing part, merely for the sake of securing a whiter colour. But it has since been shown that the prejudice in favour of white bread is not an unreasonable one. It is true that bran, together with much useless woody fibre, contains certain matter more highly nitrogenised, and therefore more nutritive than flour; but at the same time it contains certain gritty particles, and a resinous substance so irritating to the coats of the stomach, that it is thrown rapidly off, and is not assimilated by the digestive organs. Thus, though it may sometimes act beneficially as a medical agent, in point of nutriment it can in no way compare with flour. Some misapprehension also prevails, on the part of many who live in towns, as to the peculiar excellence of farmhouse bread. It often happens that the farmer grinds for his own use the *tail* or refuse wheat, which is of less value to sell; and the dark colour of the bread made from it is owing to the presence of small seeds, earth, and mouse dung, which abound in such wheat, rather than to any extraordinary proportion of bran.

Good flour is to be distinguished by being wholly free from any unpleasant smell, by being soft and smooth to the touch—not short or gritty, free from lumps, and by having a slightly yellow tinge. Immediately after being ground, flour does not make good bread. It is best when about three months old (or rather less in hot weather), but after that period it begins to deteriorate. When it has been kept too long, however, good bread may still be made by mixing the stale with new flour. New flour requires less water when made into dough than old, and flour of poor and weak quality should be mixed with very little water and worked as hard and dry as possible; it should also be baked for a longer time, but in a cooler oven than good.

Bread is made by adding to 100 lbs. of flour about 50 of water and half a pound of salt, by fermenting with yeast, and baking in an oven.

Salt is used partly to render the bread more palatable, and partly because, when used in moderation, it assists fermentation, and makes the dough rise more freely. Too much salt, however, retards fermentation, and causes the bread to be what is termed "heavy" or "sad." It also stiffens clammy dough made with new flour. The precise quantity of salt used must vary with the quality of the flour; weak flour takes less than strong, but new flour will require more than old.

During the processes of bread-making the flour undergoes various chemical changes. All flour contains some sugar, though, in sound flour, the proportion is but small; but no sooner is water added, than more sugar begins to be developed from the starch. The fermentation, caused by yeast or otherwise, develops additional sugar, and also converts part of the sugar into carbonic acid gas and alcohol. The after subjection to heat in the oven effects a further change, by turning sugar and starch into gum, more especially in the crust, where alone the more intense heat penetrates; in this a peculiar kind of gum is formed, called *dextrine*, which gives to crust its characteristic flavour. Dough is, itself, indigestible and unpalatable, and these changes are necessary to convert it into wholesome and agreeable food.

It was formerly supposed that the fermentation of bread was a peculiar one, and hence it was called the *panary* fermentation; now, however, it is ascertained that it is of precisely the same nature as that to which wines and beer are subjected, and that alcohol is thrown off, especially during the latter part of fermentation. This spirit is dissipated by the heat of the oven and lost. A patent was taken out, and attempts were made, some years since, to arrest and utilise it in large bakeries; but these attempts, though several thousands of pounds were expended, were not successful.

Fermentation acts beneficially on bread by rendering it light and spongy. This it does by generating carbonic acid gas, which, being prevented from escaping by the tenacity of the dough, inflates it with innumerable air cavities. These air bubbles are still further swelled by the heat of the oven, before the gas is finally expelled, and the fermentation stopped by the high temperature. Brown bread is less spongy than white, because the particles of bran are more porous than flour, and permit the escape of gas more freely.

Dough would undergo a spontaneous fermentation if long enough time and a sufficient temperature were allowed it. But as this would be inconvenient in practice, some agent is employed to excite an immediate fermentation. The substance commonly used for this purpose in England is *yeast* or *barm*. Yeast, the precise nature of which was long uncertain, is now known to be a plant of the fungus tribe. It consists of a multitude of minute round or oval bodies, which have, under favourable circumstances, enormous powers of growth and multiplication; and the presence of this plant has the effect of producing the chemical operation known as fermentation. Brewers' and distillers' yeasts are made use of in baking: also yeast specially prepared for the purpose (often known as "patent yeast") and German or dried yeast.

Brewers' yeast is generally impregnated with the bitter of hops, and is high-coloured. To remove these defects it should be washed. Cold water should be allowed to stand upon it for twenty-four hours, and then poured off; and, if necessary, it may be washed a second time. The newer brewers' yeast is used, the better. In an ordinary open vessel it will not keep good, in warm weather, more than a week, but it may be preserved for months by putting it in a stone bottle, pouring cold water (which must be frequently changed) upon the yeast, corking it tightly, and placing it in a cool cellar; or, still better by hanging it in a well. Sourness in yeast may, to a great extent, be corrected by the addition of carbonate of soda; and stale yeast may be improved by straining it through bran. This is good both to quicken its fermentive power and to remove bitterness.

For making bakers' yeast, the following are good receipts:—

1. Thicken 2 quarts water with 4 ounces fine flour; boil half an hour; sweeten with 3 ounces brown sugar; when almost cold pour it with 4 spoonfuls of bakers' yeast into an earthen jug sufficiently deep to permit fermentation to go on without the yeast working over; place for a day near the fire; then pour off the thin liquor from the top; shake up; strain through a sieve, and close up for use.

2. On *Monday* morning boil 2 ounces of best hops in 4 quarts of water, for half an hour; strain, and let the liquor cool down to new milk warmth; put in a small handful of salt and ½ lb. of brown sugar; beat up 1 lb. of best flour with some of the liquor, and mix all well together. On *Wednesday* add 3 lbs. potatoes, boiled and mashed, let it stand till *Thursday*; then strain and bottle for use. N.B. During making, the mixture must be kept near the fire, and frequently stirred. It should be allowed to ferment thoroughly in the earthen bowl in which it is made, and be corked tightly when bottled. It ferments spontaneously, and requires no other yeast to set it working, and it will be found better at the end of two months than at the

beginning. The above quantities will make about 4 quarts of yeast.

3. *Potato Yeast.*—Boil mealy potatoes, skin, and mash smoothly with boiling water; add water till they are of the consistency of ordinary yeast; add 2 ounces of treacle, and 2 tablespoonfuls of yeast to each pound of potatoes, which must be stirred in while they are yet warm; set before the fire, and in about 24 hours fermentation will be at its greatest height, when it will be fit for use.

These artificial yeasts should, like that of the brewer, be preserved in cool cellars, or by hanging deep in wells.

German and other dried yeasts consist of the sporules of the yeast plant freed from gas and moisture by filtering, or evaporating away the fermented liquid. In this state it retains its power for a long time. Dried yeast is, however, liable to lose its vitality through exposure to great heat or cold; and it should be carefully handled, as even a fall or severe blow will sometimes render it useless. When required for bread-making, it must be dissolved in lukewarm water. Yeast may be dried by any of the following methods:—

1. Press the yeast gently in a bag, so as to free it from the greater part of its moisture, and then place it in a sieve and expose it to a slight heat. It will dry into a hard granular substance, and should be packed in a cask, jars or bottles, so as to be kept from the air and quite dry.

2. Work the yeast round with a whisk till thin, and then spread it with a brush over a clean piece of board; dry it in the air, and repeat till the barm is an inch or two thick. This may be cut off the board as wanted.

3. Dip twigs in the yeast and dry them in the air. This is a common method.

4. Absorb the moisture of the yeast by means of wood-ashes. This is a common practice in Germany.

A more primitive mode of exciting fermentation than using yeast, and one still in common use on the Continent, is the application of leaven. This consists of a portion of dough in which putrefactive agencies have begun to work, and may be procured by leaving dough in a place where the temperature is about summer heat for six or eight days. By this time it will have acquired a fusty odour and acid taste, and will be in a state of spontaneous fermentation. A small quantity of it kneaded with new dough will set the whole fermenting, and produce the same effects as yeast, but it imparts a slightly sour and, to English palates, unpleasant taste to the bread. Where it is used a small quantity of dough is reserved to the next baking, to serve as leaven.

Fermentation is to some extent a wasteful process, since it decomposes and destroys about two per cent. of the nutritive matter of the flour, and this has led to the invention of other methods of impregnating the dough with carbonic acid gas. This is done in two ways—by forcing carbonic acid gas into the dough, or the water with which it is mixed, as in the manufacture of *aërated bread*, or by mixing with the flour chemicals which will evolve the gas within the dough, as in the use of *baking powders*.

Aërated bread is made by putting flour in a strong iron box, moistening it with water into which the gas has been forced, and kneading it by machinery inside the box. In about ten minutes the dough is taken out and baked. This plan is more expeditious than ordinary baking, and more cleanly, as the dough has not to be worked by the baker's hands, and it makes an exceedingly pure and wholesome bread; but it cannot well be made use of for home-baking.

Baking powders consist of carbonate of soda and tartaric acid, or ingredients of a similar nature, mixed with a little starch and coloured with turmeric. They act by the acid combining with the soda, and liberating carbonic acid gas. A salt is at the same time formed, which remains in the dough, and can generally, to a greater or less extent, be detected in the flavour of the bread. This renders their use inferior to aëration, though they have, like it, the advantage of expedition, and the dough made with them requires little kneading. Sometimes, for light fancy bread and rusks, sesqui-carbonate of ammonia is used, which has the quality of passing wholly into gas.

The following will make an ordinary baking powder:—Carbonate of soda, 2 pounds; tartaric acid, 1 pound; potato flour, 4 pounds; and turmeric powder, ½ ounce.

Unfermented bread, according to Dr. Pereira's receipt, is thus made:—Flour, 1 pound; bicarbonate of soda, 40 grains; cold water, ½ pint; and muriatic acid, 50 drops.

Some medical authorities consider fermented bread to be injurious, but the universal employment of it would argue the contrary; indeed, as the vitality of yeast is completely destroyed by the heat of the oven, it is difficult to see in what way it can be hurtful. Dr. Hassall is of opinion that baking powders are, of the two, more likely to be prejudicial to health.

CHILDREN'S DRESS.—XV.

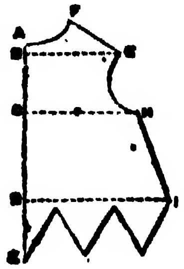
CLOTHING FOR A GIRL OF EIGHT.

(*Continued from Vol. II., p. 198.*)

PINAFORES may be made in various ways. They may be merely a plain breadth of diaper, holland, or fancy print, hollowed out a little for the neck, hemmed at the bottom and sides, and round the neck, where a string is run in, like Fig. 1. Fig. 2 is a very pretty way of making a dress pinafore, which will look well over a silk frock. It consists of two breadths of fine book-muslin, sloped like Fig. 3. These are wide enough at the top to cover the front and back of the body, at the neck, respectively; each piece is trimmed all round with insertion lace, an inch or an inch and a half wide, and run on over some pretty bright-coloured satin ribbon; the two breadths are joined on the shoulders only, and hollowed out nicely at the neck, as shown in Fig. 2. In front, a band is put, and a satin ribbon run in it, which ties behind; and this, also, is shown in Fig. 2. Instead of ribbon, coloured muslin can be run in under the lace, and has the merit of washing with it. The broad coloured and white striped muslin can be cut up for this use.

A Frock Pinafore.—A useful and lady-like looking pinafore is one made like Fig. 4. It may be formed of brown holland, or of light-printed calico, and can be worn all day, in and out of doors, without any frock. For mothers who wish to be saving, we highly commend this article. It can be used from six or eight years old till the child is ten or twelve, if she is small for her age. It is easily made, and easily washed, and is, therefore, most economical. When a cotton garment is no longer warm enough, this frock pinafore can be used in alpaca, coloured or black. The real alpaca washes as well as cotton, and our hints on cleaning clothes, in another place, enable mothers readily to do so. Grey alpacas are very pretty. But the mixtures often sold under the name of alpaca must not be mistaken; they do not wash well. There is a steel-grey one, speckled black and white, which should be avoided. Real alpaca may be known by a certain stripy look, and unevenness of colour, on close inspection, and the absence of all speckly or dotty-looking threads. Alpaca is glossy, but with the gloss of the hair. Spurious alpacas are either dull or shine from a mixture of alpaca, but the cotton threads which cross them show in stringy white specks when examined closely. Black alpaca may be used. French merino and linsey also wash well. Linsey is a little more inclined to shrink than merino. Serge washes well, but shrinks a little. All wool plaids bear washing. Black and white small check ginghams, or small stripes, and plain, coloured, speckled linens are very suitable; also the printed calicoes which have extremely narrow line stripes close together, and

look like a plain colour. Cut the back and front of the pinafore the shape of Fig. 3. Should the material not be wide enough, the back and front must be gored, or rather, what is sloped off the side, A, can be used to form the gore, B. Slope out the neck by the dotted line, C, sloping the front an inch lower than the back. Supposing the gores have been run and felled on, and the seams at the side run and felled as far as D D from the bottom, cut open the tops of the shoulders from E to E. Here a shoulder-piece must be inserted; cut this in four places, over the child's band. The rounded top of the sleeve is put in front of the body; a place is left open for the armhole, and may be slightly rounded; pipe it, and stitch the sleeve in. Set the wrist into a straight cuff. Cut down the front of the pinafore from C to F—that is, almost to the waist. Make a narrow hem one side; turn in the selvage on the other side, and put a piece of stuff, piped round, over it, like Fig. 7; tack this first, and then stitch it on; fell this over the narrow hem, and stitch it across at the waist. Next, put the neck into a band long



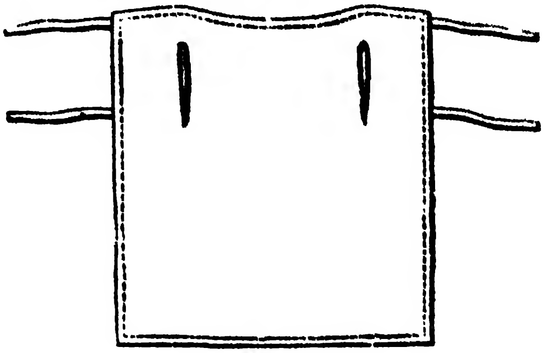


Fig. 1.

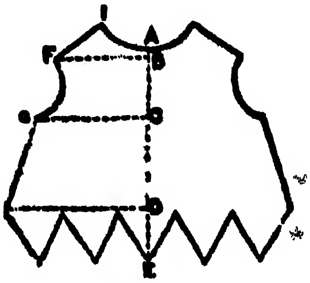
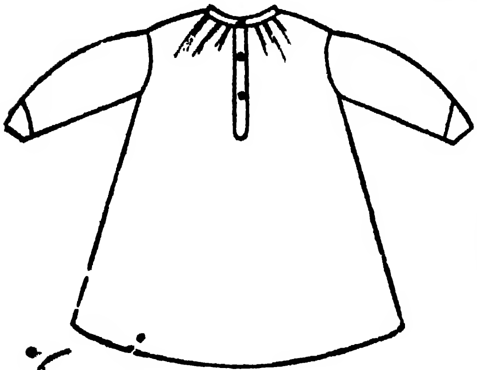


Fig. 12.



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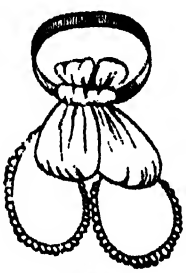


Fig. 8.

Fig. 7.

Fig. 5.

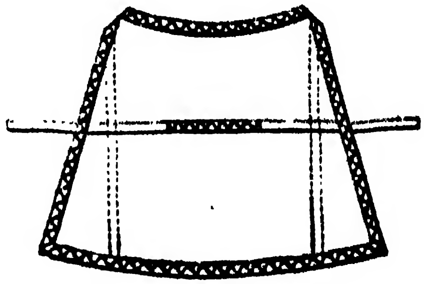


Fig. 2.

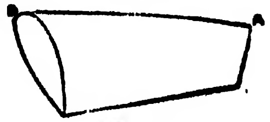


Fig. 6.

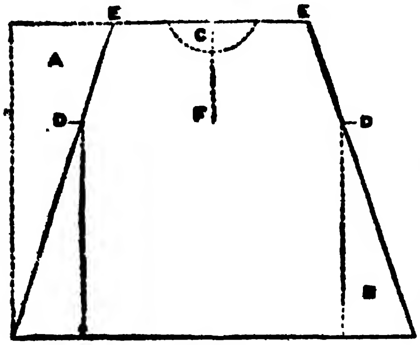


Fig. 3.

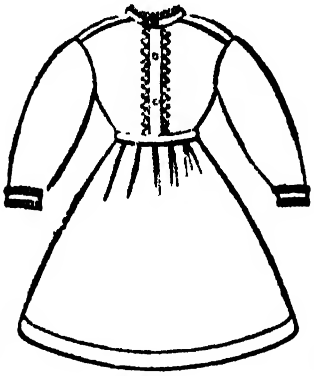


Fig. 4.

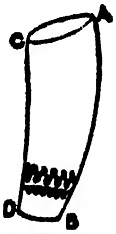


Fig. 10.

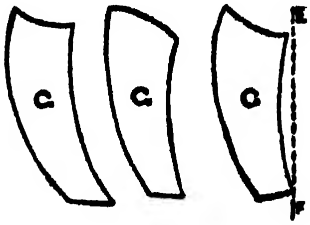


Fig 13.

two each side, like Fig. 5. Pipe one of them, and stitch it from A to B, Fig. 5, into the shoulder at C to E, Fig. 3; stitch both sides of the shoulder to it, placing the broad end where the sleeve will be, and the narrow end at the neck; turn to the wrong side, and hem a second shoulder-piece on the wrong side of the first, as a lining to it; hem it by the two sides A and B in Fig. 5, turning in a little first, and taking care that the stitches do not come through and show on the right side; hem the skirt; cut the sleeves in one by Fig. 6, folding the stuff from A to D (Fig. 6) on the cross. The top is to be as large round as the arm-hole, one side rounded, as shown in the diagram above, and the other sufficiently large to slip enough to go round easily and button an inch over. The pinafore will require slightly fulling into this. When completed, this band should measure about half an inch wide. To trim it, if a print, frills of the same, hemmed, may be whipped on: they should measure an inch and a half wide when complete, or only an inch. If of woollen material, trim the frills over the stitches of the hem with narrow black or bright-coloured woollen braid. Lace may be used instead of frills. Whipping is done by rolling the raw edge of the frill between thumb and finger till it is very fine, then sewing over it, not too closely together. Only a small piece can be rolled, sewn, or drawn up, at a time, rolling again as you go. If too much be left to draw

up at once, the thread will break. The cotton must not be too fine for whipping and gathering. Some people roll all the frill to be whipped first, and then roll it again, piece by piece, as they go. This makes the neatest work. It should be done with fine cotton and fine stitches, on to the inside of that which is to be trimmed on the wrong side. Every gather ought to have a separate stitch to sew it on. The best plan for any one not acquainted with that kind of work is to take some already done as a pattern, and follow out these directions.

With the frock pinafore a belt and sash is worn, hooked behind. It is made like Fig. 8. The piece round the waist is one strip, cut down the selvage way, piped, and lined with a second strip, cut in the same way, and hemmed to it; it is furnished with a large button; the bows and ends are placed behind. The ends are trimmed with frills.

Fig. 9 shows the garment complete, without the sash or trimming. A frill is to be placed all round the piece down the centre of the body, which must be furnished with two buttons, besides the one at the neck; another frill stands upright round the throat. The cuffs have double frills—one at the upper edge of the band, turning up on the sleeve; the other at the lower edge, turning over the hand.

Summer Paletôt for a Girl of Eight Years of Age.—This is a very pretty paletôt for a girl of eight years. It is cut with deep vandykes all round the edge, which look well over the frock. It can be made with white piqué, trimmed with a scalloped edge of muslin embroidery and narrow fancy cotton braid. The edge of the jacket is turned under all round, and stitched to the embroidery. On the wrong side, the raw edges of both are simply left loose. The neck is set into a half inch wide band, to which an upright muslin embroidered edge is stitched. The margin of muslin belonging to the edge lines the band, and is hemmed down on the wrong side. Braid is put all round the jacket, as shown in the sleeve, Fig. 10, which is trimmed with a half cuff, edged with embroidery, and a row of braid in a pattern above it. This is put on the upper half of each sleeve before the two pieces are joined.

To cut the pattern, first mark or draw it on paper from the diagram and the description, measuring the right distances.

This shape looks well in silk, edged with black lace or fringe, and beaded with a pretty passementerie, or in any material of a fancy kind, to match the frock.

For the Back (Fig. 11).—The back is seventeen inches long from A to E; only half the measure of the width is given from the dotted line of the back, as may be observed in the diagram. It is only necessary to cut half the pattern in paper, and to double the stuff and cut the two halves together, that they may be alike. The fold of the stuff comes at the dotted line, and must be down the material that is level with the selvage; the measure of relative length is—from A to B, two and a half inches; from A to C, seven inches; A to I, the neck, is two and a half inches; D to F, the width across the shoulder, seven and three-quarter inches; C to G, under the arm, nine and three-quarter inches; D to N, just above the scallop, eleven and three-quarter inches; I to F, the shoulder, five inches; G to H, the side seam, six inches.

For the Front (Fig. 12).—Two fronts must be cut separately. The measure for each is the same. The selvage must be level with the straight part, from A to E. From A to E the front is thirteen inches long; from A to B is half an inch; from A to C, four and three-quarter inches; from F to A, the neck, is four and a half inches; from G to B, across the chest, is eight inches; from H to C, across the waist, is nine inches; from F to G, the shoulder, is five inches; from H to I, the side seam, is six inches.

For the Sleeve (Fig. 10).—The outer curve, from A to B, measures fifteen and a half inches; the inner curve, from C to D, only eleven and a half inches; the width across the top, A to C, is five and a half inches; the wrist, B to D, three and a half. One side of the sleeve is curved, with a bow at the top, the other hollowed out. Two pieces must be cut alike from the pattern, with the difference only at the top. Put the cuff trimming on the round-topped one. Run the two pieces together on the right side near the back. Turn the sleeve, and run it again on the wrong side, just within where the raw edge of the first turning comes, which can be felt with the fingers. This makes a seam without raw edges to irritate the child's arm; it is called a mantua-maker's seam. While cutting the sleeve, place C and D of the inner curve level with the selvage; this will bring the rounded part at the back actually on the cross, though the pattern lies straight down the stuff. If not cut this way, the sleeve will not sit well. Fig. 13 shows how sleeves should be cut. Get all four pieces out of a breadth, if it be wide enough; but often only three can be got. E to F is the selvage of the stuff; G G G, the sleeve patterns. The backs and fronts of the jacket are joined on the shoulders and under the arms with mantua-makers' seams. Care must be taken for the scallops of the jacket to meet properly at the seams.

HOUSEHOLD DECORATIVE ART.—XXXII.

THE ART AND APPLICATION OF ILLUMINATING.

ALTHOUGH of considerable antiquity as a decorative art, it is only within the last few years that illuminating has assumed any importance in modern times. Throughout the middle ages, when literature was only produced in the form of manuscript, this art was of great importance and was highly developed. In the different epochs of that period it was marked by great diversities of style, and appears to have received no less attention than any of the other fine arts. But when printing superseded written books illumination languished, and finally became extinct. Since the revival of Gothic architecture, however, this beautiful art has again been brought into notice, and much has been produced in it which may not unworthily compare with that of the mediæval period. In modern times it has more especially been practised by ladies, to whose graceful taste and delicate touch it seems more particularly adapted. Indeed, as an employment for their leisure hours, nothing could be more appropriate, and the great popularity to which it has attained, cannot be a matter of surprise. There are few families of a certain class, by the lady members of which it is not practised, though perhaps not always in so intelligent a manner as might be desired, and there are many others into which it could with advantage be introduced. We propose to describe the materials and processes necessary to this art, and to give such directions as may enable them to render their work complete and attractive; and, moreover, to apply it to the adornment of their homes, and other purposes.

Tools.

Of these the following will be necessary:—

Case of Mathematical Instruments, from .	1	6 (½ case)
T-square (12-inch) and set square	1	6
Curves (3)	2	6
Drawing pins (1 doz.)	0	6
Drawing board, medium size	3	9
Agate burnishers (2), flat and pointed ..	4	0

Pencils.

Sable (3), crow, duck, and goose quill... ...	1	8
Camel-hair (½ doz.), different sizes	0	9
Soft sponge for damping	0	9

In addition to the above, several odd matters which will cost but a few pence should be provided, such as quill

and steel pens of various breadths of point, from the "mapping-pen" to the "middle-text;" a tracing-point of hard wood or ivory, ink-eraser, india-rubber, &c.

Materials.—Although we shall show hereafter how illuminating may be applied to some other substances, our present list of materials will only include those necessary in working upon the substances more ordinarily employed, which are paper, cardboard, and vellum.

The papers and cardboards most suitable for illuminating are vellum paper, which costs 1s. per imperial sheet, Whatman's hot-pressed drawing papers (from 6d. to 1s. per imperial sheet, according to thickness), London board, which is superior to Bristol, of "three sheet thickness," (2s. 6d. per imperial sheet). Other papers may be used, but these are preferable. The characteristics of a good paper for illuminating are firmness, thickness, and even surface. The size of an imperial sheet is 30 inches by 21 inches, but smaller or larger sizes may be had at proportionate prices.

Vellum, which will only be required in extraordinary cases, is much more costly than paper. The prices of it vary greatly, but we give those from the lists published by one of our London artists' colourmen. Vellum, in pieces 6 inches by 5 inches, 6d.; 10 inches by 7 inches, 1s. 3d.; 14 inches by 10 inches, 2s. 6d. That most suited for the purpose of illuminating is fine Italian vellum, prepared from the skins of the kid.

Colours.—The colours used for illuminating are water-colours, which are to be purchased of three kinds—in cakes, moist in gallipots, or in powders. Powdered colours are of little use, and therefore need not be purchased. Moist colours have the advantage of being most convenient for use, and being prepared with a greater amount of medium have more body and often greater brilliancy; but they will always be liable to dust and will suffer from its action. This inconvenience may certainly be obviated by buying them in tubes; but this always involves waste of colour, since after it has once been squeezed on to the palette it cannot afterwards be replaced in the tube. On the whole we would recommend the cake colours as being least open to objection.

The following colours will be found indispensable, and should be first purchased by the beginner, or by those to whom expense is an object. They may be bought either moist, in pans or tubes, or in cakes at 1s. each, except in the case of those marked *, which are 1s. 6d.; those marked †, which are 2s.; those marked ‡, which are 3s.; and those marked §, which are 5s. each; half or quarter-cakes also may be bought.

Reds.—* Scarlet vermilion, which is a vivid body colour; mixed with lampblack, forms a deep brown, and with Chinese white a variety of fine tints, which may be shaded with vermilion. ‡ Carmine, the most beautiful of transparent crimsons; to make a body crimson, it will require the addition of vermilion; with cobalt and French blue it produces good violet and purple tones. ‡ Rose madder, a pure and transparent carnation, and remarkable for standing better than most of the lakes.

Yellows.—‡ Cadmium, a good permanent yellow. * Indian yellow is somewhat brown if laid on thickly, but in slight washes is brilliant. ‡ Lemon yellow, a pale, primrose colour.

Orange.—§ Mars orange.

Browns.—Burnt sienna inclines to orange, and is a useful shadow colour for yellows. Vandyke brown, the most useful brown for general purposes.

Blues.—‡ French ultramarine which forms, with carmine and Chinese white, a good lilac. † Cobalt, in combination with Chinese white, forms delicate azures.

Purples.—Indian purple. † Violet carmine; this is a deep rich colour.

Greens.—Emerald green is a bright colour, and has a remarkable power in heightening the effect of other colours when placed close to them; it is difficult to work. ‡ Oxide of chromium, a deep body green.

Blacks.—Indian ink is useful for outlines and letters. Lampblack; this is of value for large surfaces.

White.—Chinese white. Invaluable for forming tints of all the foregoing colours.

Neutral Tint forms a good grey when mixed with white, and is of much service in shading.

The following colours, though less necessary, will often be found convenient for many purposes:—

Reds.—Redlead, * crimson lake, Indian red.

Yellows.—‡ Mars yellow, chrome yellow No. 2, ‡ aureolin.

Oranges.—Burnt Roman ochre. Neutral orange.

Browns.—Burnt umber, * sepia.

Blues.—§ Smalt, indigo.

Purples.—§ Purple madder.

Greens.—Moss green, olive green.

Black.—Ivory black.

Boxes fitted with a number of the more useful colours, pencils, and some of the necessary instruments, may be bought for from £1 1s. to £5 5s.; but the beginner will generally do better to purchase each colour and instrument separately.

Metals.—Of these gold is the most important; by the old illuminators this was generally used in the form of leaf, which they prepared for themselves of a purer, thicker, and more enduring quality than that ordinarily sold; but an extra thick leaf, specially prepared for illumination is to be bought at 1s. 6d. per book. Wherever gilding can be done with leaf gold the effect will be best; but as the beginner will find considerable difficulty in using it, he may employ the more manageable gold paper for large surfaces; this is thin paper covered with gold on one side, and costs 3s. per sheet. For lines and smaller spaces, gold powder, liquid, or shell gold may be used, and none is more simple to use than shell gold, which costs 8d. per shell.

Silver is to be had in the same forms as gold, but it has the disadvantage of turning black if long exposed to the air. In most cases, therefore, it is better to use platina, or aluminium, which, though less brilliant at first, is more durable. Silver leaf is 1s. 6d. per book. Platina, and aluminium are to be procured in the same forms as gold (leaf and paper excepted), but the most convenient form is the shell. Aluminium shell is 3d., platina shell is 8d.

Bronze should not be used on any delicate work, as it will soon tarnish, and become of a disagreeable colour; but sometimes its cheapness will recommend it for large surfaces, when it can be protected with varnish, with good effect. Bronze of gold, silver, or copper colour, can be bought for 2s. 6d. per ounce.

For gilding on paper, cardboard, or vellum, water gold size is generally used; its cost is 1s. per pot; but for some kinds of illumination, which we shall hereafter have to describe, japanners' gold size will be necessary; enough of this can be bought for 2d. to gild a large surface. A preparation for raising surfaces to be gilded may be bought at 1s. 6d. per bottle or tube. There is also an "Illuminating Body" (price 1s. 6d. per tube), used for giving greater richness to large surfaces of gilding.

Ox-gall, which costs 6d. per pot, will be found useful in causing the colours to work smoothly upon paper or vellum, which may have become somewhat greasy.

Tracing-paper will also be wanted. This will not cost more than 6d. per sheet.

The whole of these materials (japanners' gold-size excepted) may be bought of the artist's colourman.

Our introductory article on illumination is necessarily dry and uninviting, but the following papers, in which we shall enter upon the practice of this beautiful art, will not want interest, and they will be illustrated with initial letters, borders, diapers, &c., of value to the amateur.

COOKERY.—LI.

CHEAP COOKERY.

Rice Dishes.—Rice is, in this country, greatly undervalued as an article of food. In times of scarcity, it is, however, more used. It is cheap and nourishing. With or without milk, it may be eaten for breakfast, dinner, or supper. One pound of rice boiled in a bag, until tender, will make four or five pounds of pudding, which may be seasoned with salt, or sweetened with treacle or coarse sugar, or a little preserved fruit. To boil rice, first soak it for seven hours in cold water, salted. Then put the soaked rice into a saucepan of boiling water, and boil it ten minutes. Next, pour it into a cullender, and set it by the fire, when the grains will be separate and very large. The water in which it has been boiled, in the East Indies and in China, is called *congy water*, and is prescribed by medical men there as nourishing food for sick persons; such water is, in fact, rice-gruel.

A little salt and pepper, boiled in water, separately from the rice, and poured when hot on a plateful of hot boiled rice, makes it slightly savoury. Or a few slices of onion and a little butter, may be added to the above. Or a few slices of fish or meat, added to the above, and boiled. Or a little curry powder or spice, with or without the onion. Or, on a soup-plateful of hot boiled rice, pour two lightly-boiled eggs, to which add a little cold butter, mix together, use with fish or meat, and it will be found substantial and agreeable food. Or, boiled rice, mixed with a little milk, sugar, and spice, will be found light and agreeable food either hot or cold.

Savoury Rice.—Take six pounds of meat bones, which break into small pieces, and boil in ten quarts of water for four hours, having added three ounces of salt, a small bunch of thyme, bay-leaf, and savory. Put into a stewpan two onions sliced thin, half a pound of vegetables (carrots, turnips, celery, &c.), and half an ounce of sugar. Put it on the fire for fifteen minutes, stirring it occasionally; add half-a-pound of oatmeal, and mix well; add two gallons of stock from the bones, and a quarter of a pound of rice, previously soaked; boil till soft and serve. Or, boil one pound of rice in three quarts of water, some allspice and salt, and a piece of dripping; stew gently, and when the rice is tender, grate over it strong Cheshire cheese, and serve. Or, boil the rice dry, when add pepper and salt, two or three sliced onions, and a piece of dripping; stir until the onions are tender, when serve it in a deep dish.

Rice Stew.—Take a red herring, a few ounces of lean bacon cut small, three onions, a few peppercorns, and a sprig or two of thyme and parsley. Put the above into three pints of water, and boil it three-quarters of an hour, with one pound of rice. When it boils, set the pot by the side of the fire, when the rice will swell, and taking up all the water will become soft.

Plum Pudding.—Mix a quarter of a pound of raisins and the same of currants; one pint of flour, and three-quarters of a pint of milk; six ounces of chopped suet, and three tablespoonfuls of treacle. Boil three hours.

Scotch Broth.—To four pounds of mutton, put one gallon of water in a saucepan; a teaspoonful of pearl barley, two carrots sliced, two turnips sliced, two onions cut small, three carrots grated, the white part of a large cabbage chopped very small, and a small quantity of parsley. Season with pepper and salt. Boil very gently for three hours and a half, and then serve.

Vegetable Stew.—Put two ounces of butter into a deep stewpan; peel one onion, slice it thin, and put it on the fire till lightly brown (stirring it now and then), and half a pound of vegetables, as turnips, leeks, celery, carrots, &c. Do not peel them, or throw away anything, but wet them well, cut them in a standing direction, put them into the stewpan, and fry ten minutes longer; add a pound and a quarter of peas, and fill up with two gallons of water; let it simmer for three hours, or until the peas are in a pulp; mix half a pound of oatmeal with a pint of water, make it into a liquid paste, and pour it into the stewpan, stirring it with a spoon; add three ounces of salt, half an ounce of brown sugar, boil it ten minutes, and it will be ready for use. A little mint, bay-leaf, thyme, marjoram or winter savory, is an improvement, as is also soaking the peas in soft water.

Fish Stew.—Cut into pieces four pounds of fresh fish of any large kind; put them into a stewpan with three ounces of salt, half an ounce of sugar, a little pepper, two bay-leaves, a little thyme, and one quart of water; let it stew gently. Then mix one pound of oatmeal with seven quarts of lukewarm water, and pour it over the fish; stir it gently, so as not to break the fish too much, and let it boil twenty minutes, when it will be done. A red herring, or salt fish previously soaked, is good to make this stew; but omit the salt if all salt fish is used.

Pea Soup.—Soak one quart of peas in seven quarts of water a day and a night; then slice some carrots, onions, or leeks with celery, and any sweet herb into a fryingpan, and fry them in dripping, or lard, or fat pork, to a fine brown colour. Add the above to the peas and water, and stew them in a closely covered pot three hours, until the peas be quite soft, stirring them now and then. Pass the whole through a cullender, or coarse open cloth, and season with pepper and salt. Or, cut into small pieces, one pound of beef, mutton, or pork; take half a pint of peas, which have been soaked in water twenty-four hours, four sliced turnips or two carrots, six cooked potatoes, and two onions. Put to them seven pints of water; let the whole boil gently over a very slow fire for two hours and a half. Then thicken it with a quarter of a pound of oatmeal, mixed thin in a basin with a little of the soup; boil it up, stirring it all the time; then season with pepper and salt.

Colecannon.—To a dish of mashed potatoes add one-third of their quantity of young cabbage, savoy, or spinach, previously boiled or mashed also. Season with pepper and salt, add a little butter; warm, and mix well together.

Poor Man's Sauce is made in France, by chopping up half a dozen shalots and a bunch of parsley, and warming them in equal quantities of vinegar and water, seasoned with salt and pepper.

Cock-a-leekie Soup.—Peel and cut into slices, about half an inch thick, a couple of leeks; put these, and a piece of meat of any kind, into the liquor in which meat has been boiled; throw in salt and pepper to taste. Boil slowly for an hour, and add two more leeks, sliced as before, and simmer forty minutes. Then take out the meat, and either serve the soup strained or with the vegetables, according to taste. Leeks are commonly thought of vulgar and common flavour; this is prejudice, as the flavour of the leek is much more delicate than that of the onion.

Potato Haricot.—Cut into pieces beef, mutton, or pickled pork, and season them with salt, pepper, and chopped onion; peel, and slice potatoes, and put them into a stone jar, in layers, with the meat; tie over the jar, set in a saucepan of water over the fire, and stew for about an hour after the water begins to boil.

Potato Pudding.—Boil, peel, and mash three pounds of potatoes, to which add a quarter of a pound of finely shred suet, and the same of grated cheese, or beaten herring, mixed with a quarter of a pint of milk, and bake half an hour in a quick oven.

Potato Pot.—Lay small pieces of beef or mutton at the bottom of a deep brown dish; season them with pepper and salt; slice in some onions; peel some potatoes, and fill up the dish with them; pour in some water, sprinkle salt and flour over the potatoes, and bake.

HOUSEHOLD AMUSEMENTS.—XX.

THE COLLECTION OF POSTAGE STAMPS (*contd. from p. 5*).

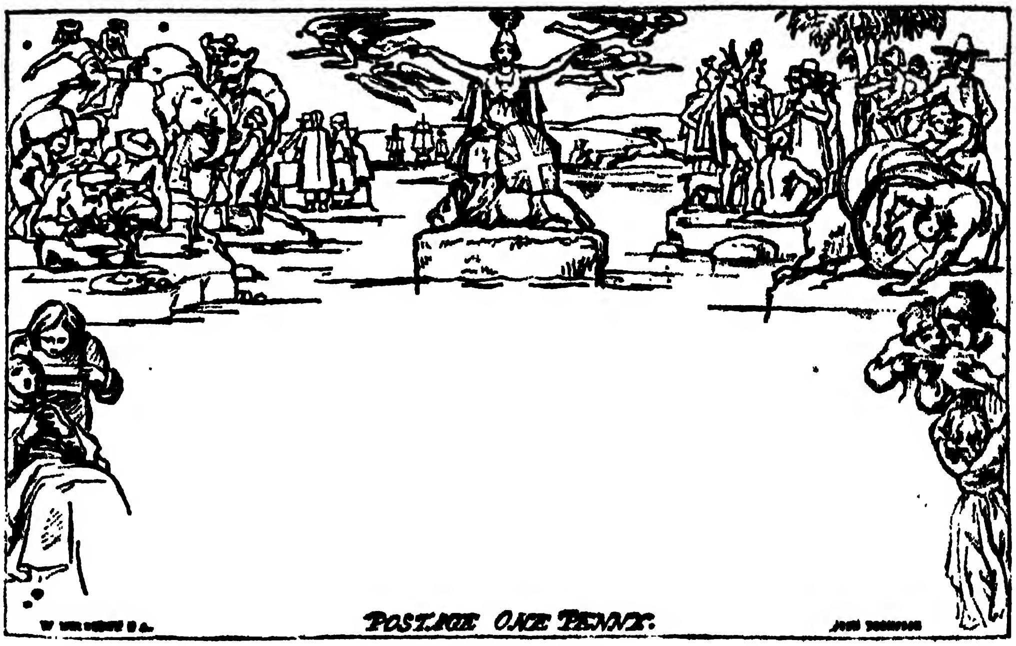
HAVING shown the uses of this pastime in our previous paper, we will now give some practical hints to the collector, to guide him in his pursuit.

Some people set out by proposing to themselves to collect together all the current issues of every country in the world, and elaborately got-up albums are sold, in which spaces are marked out for all the well-known stamps in circulation. These albums are apt to get out of date, through the issue of new stamps in different countries, and by political changes, such as those referred to in our last paper. We recommend the young collector not to begin by purchasing an album of this kind, nor to trouble himself about an album at all, until he has accumulated a large number of specimens. (When albums are desirable, they may be purchased from any of the large dealers in foreign stamps, who have identified themselves with this pursuit, and prepare them of various sizes.)

The object should be to possess the most striking varieties in design and colour issued by the government of each country, and the best specimens of these varieties, retaining a faint or much-obliterated stamp only until a better can be met with to replace it. Mere differences of value, without change in design, are hardly worth notice. Two specimens, at the most, of the same design are sufficient to answer every useful purpose, and even two are unnecessary, unless there is a change in colour.

Very many collectors pursue their hobby to an altogether unreasonable length. Every shade of difference among stamps of the same country—whether in price, date of issue, or texture of the paper—is sought after eagerly, and albums are filled with what appear, to all but a very experienced eye, to be mere duplicates. But the time given to the pursuit of stamps so closely akin to each other is much better occupied in the collection of entirely different examples, or, in the intervals when this cannot be done, it should be transferred to some other employment. Postage-stamp collecting, like other amusements and occupations, should be kept in its proper place, and not absorb too much attention. It is not good to ride any hobby to death.

One of the first essentials to a collector is a discriminating eye, not only to enable him to gather good impressions of particular stamps, but also to guard against forgeries. These, now that stamp-collecting is so popular an amusement, have become very common, and a regular trade is carried on in the imitation of foreign stamps, and the sale of these imitations at a low price. Many so-called stamps, which have never had an existence, are also sold to the unwary as new issues. To avoid all the deceptions current in this way is only possible by the help of much experience; but the collector will do well to look



THE MULREADY ENVELOPE.

PONY EXPRESS.

WASHINGTON.

FRANKLIN.

THE HUMOROUS IN STAMPS.

with suspicion on any specimen that is not well printed and sharply defined in the engraving. He may also take it as a general rule that a partially-obliterated stamp is more likely to be genuine than one that is apparently unused; and a knowledge of the obliterating marks actually employed in a particular country—which he may gain by observing stamps in the collections of other people—will assist him in satisfying himself that a specimen is really what it professes to be.

With regard to forgeries of stamps, we may add that even governments find it necessary to be on their guard against them, and to watch for the appearance of colourable imitations of the stamps in circulation. The elaborate nature of the design and ornamentation of the stamps of many countries is intended not so much to make them elegant in appearance as to prevent fraud. The artistic work displayed, for instance, in the United States' stamps, which bear the heads of Washington and Franklin, could only be imitated by a very skilful hand, which could be more profitably as well as less dangerously employed than in assisting to defraud the revenue. Moreover, little peculiarities or imperfections in design, such as breaks in the continuity of the lines of a scrollwork, &c., are often purposely made, so that an imitation may be more easily detected. But, with all their caution, post-office authorities are frequently compelled to withdraw an entire issue or issues from circulation, or to change them at frequent intervals, so that fictitious stamps may not obtain currency. An entirely new series of American stamps has lately been produced, and we believe principally with this object.

Among the details which the collector should observe in the examination of stamps, one of the most important is the *water-mark* of the paper. We have no doubt that, common as are our own penny postage-stamps, and often as they must have passed through the hands of every reader of this paper, it will be new to many to learn that they all bear their own peculiar water-mark, just as one is found in a five-pound note. And yet, if the reader will take a penny stamp and look carefully at the gummed side, he will distinctly see the water-mark of a crown in the paper. Stamps of other values have other marks, such as a flower or a cross.

When the collector has procured a hundred or more specimens, he may make up his mind as to the character of the album in which they shall be placed. If he has money to spare, he can select one of the many different kinds sold in the shops, although the very elaborate example should be avoided for the reason before given, and further because spaces are frequently left in it for examples which it will be a waste of time to try to gather. But he will do quite as well to make an album of his own, either ruling it with spaces for the specimens, page by page as he goes on, or trusting to his own care in gumming them in to secure their orderly arrangement. His plan of insertion may be either according to the alphabetical order of the countries, or their geographical distribution; or he may combine the two. In the latter case, starting with his own country, he may give the stamps of other nations of Europe in their alphabetical order, and then classify those of Asia or America. The stamps should be gummed or pasted only on one side of the paper in the album, and if the corners alone of the stamps are made to adhere, they are more easily removed for the insertion of better specimens.

We supplement the illustrations given in our last paper with a few more examples, to which particular interest attaches. The first is a fac-simile representation of the famous "Mulready envelope," an example of which is much coveted by many a stamp-collector. Its history is briefly this:—At the time when the penny postage system was introduced, the idea was entertained of using an engraved envelope, to be issued by the Post-office, for the purpose of franking letters; and the design shown in our illustration was prepared by the celebrated artist, Mulready, for that purpose. It shows Britannia dispatching her winged messengers to all the nations of the earth; while below are figures typifying the emotions created on the receipt of the communications the envelopes were intended to contain. They were in use for a short time only, giving place to a plain envelope with a stamp embossed upon it.

We have already alluded to two of the examples of American stamps, which we give in this paper. The third represents a celebrated stamp known as the "Pony Express," which was in use when United States' mails were partly conveyed under arrangement with a private company, and in the manner indicated by the title. The design of this stamp came up again a few years ago in the 2-cent. label, issued by the American Government, and which is, most probably, familiar to many of our readers.

The remaining examples we give as illustrations of what may be called the humorous in postage-stamps—an element for which we believe we must look to the United States exclusively. The first was issued by an association which formerly undertook the conveyance of mails between Boston and New Orleans. The next was also issued by a private firm before the Government took the conveyance of letters entirely in its own hands. The design is bold enough in its way, but, extravagant as it is, it has some degree of appropriateness to the subject. A bomb is intended to figure the distribution or scattering of the letters; a pair of wings, the rapidity with which they are conveyed; and the stars, the unlimited space through which they may be sent. The idea is truly American, and we have here certainly a postage-stamp curiosity.

THE MISTRESS OF THE HOUSE.

DISTINCT from the duties which devolve naturally on a wife and mother, are those of a mistress, or female head of a household. Not that the exercise of any, or all, of these functions is incompatible one with the other. On the contrary, the union of the qualities which constitute a good wife and mother is never so complete as when combined with knowledge of housekeeping. No one is so well suited to the latter charge as the sharer of a husband's earnings; no one has so direct an interest as herself in effecting pecuniary economies, and preserving her household in health and happiness. It is much to be deplored that many excellent wives fall short of the full measure of their value, simply from deficiency of practical knowledge.

As it is not possible, in this place, to enumerate all the manifold duties of the mistress of a household, we will content ourselves with commenting on the principal.

Firstly, with regard to the spending of money. In most middle-class families the wife is the medium through whose hands daily wants are directly supplied. The English wife generally spends all the money required for domestic purposes. Having deducted the sums necessary for rent, taxes, insurance, and professional or trade expenses, the husband usually places in the wife's hands either the remainder of the income, or as much of it as he thinks necessary for providing such articles as food, fuel, clothing, wages, replacements, and other necessaries contingent upon wear and tear of furniture, linen, &c., together with the education of children, should any belong to them. The perfection of management consists in maintaining a fair proportion in all the above items of expenditure; not suffering the demand for clothing, for instance, to trench on the sum allotted to food, or *vice versâ*. If the sum of money at disposal be but small, the mistress

should curtail all superfluities in every department over which her rule extends; excessive dress and pleasure-seeking being, perhaps, those which are most liable to fritter away an income, as a moth does a garment.

In all housekeeping arrangements some margin should be left, by the mistress, to meet unexpected misfortunes caused by illness, &c.

Sometimes it happens that, with the most careful check upon unnecessary expenditure, sums of money are laid out unwittingly, leaving nothing to show for the disbursement. The only plan to prevent this unsatisfactory result is to keep close accounts of all money received and spent. These entries should be made daily. At the end of the week the sum-total on either side should be added up and balanced. At the end of the month, again, each item of expenditure should be taken out, and the sums paid for meat, beer, bread, &c., should be entered separately under their respective heads. In order to make any variation in the average consumption clear at a glance, the number of persons provided for should be marked down in a foot-note. Memoranda should likewise be made of any extra demands which may have arisen from sickness, party-giving, or other unusual occurrences.

Having ascertained the extent of the income at her disposal, a mistress should endeavour to make the most of it by paying ready money for all purchases—ready-money payment being the basis of all true economy.

Taking the money from one's purse at the time of buying anything, and "setting it down to account," are by no means the same thing in the end. Independently of interest for money which in some form or another has to be paid when credit is given, the buyer, when she pays for an article at the time, very seldom purchases either what she does not want or in excess of the required quantity. Inexperienced housekeepers especially are liable to fall into the latter errors; the temptation to give a larger order than needful being almost irresistible, when prompted to do so by the persuasive suggestions of a good salesman.

The limit to which the term "ready money" extends is very elastic, and may mean one week, a month, or a quarter of a year or twelve months, according to the credit attached to the purchaser's position in life. As a general rule, however, the longer a bill remains unpaid the greater is the amount of interest charged; although not ostensibly as interest, but in increased charges. In the strict and profitable sense of the word, ready money means payment on or before the delivery of goods. At such times only can any abatement or discount be asked for.

Weekly books are in almost all cases against the interest of the buyer. What with the errors of entry consequent upon the number of persons through whose hands the order passes, and the delay in returning the books when made up, mistakes are inevitable and, of course, wherever any doubt exists, the loss falls on the customer.

As far as it is possible, a mistress should give her own orders, choose her own provisions, pay her own bills, and file the receipts with scrupulous exactness. The above method is, in reality, *marketing*—that old-fashioned term which represents the most healthful and profitable occupation for a woman in the *morning* of the day. Not only is the practice conducive to the direct saving of money, but the choice of provisions is greater than at other times. The chances for change of food also resulting from the practice is by no means the least boon. Nothing is so likely to undermine the health as sameness of diet, and if the mistress of a house stays at home from one week's end to another, she is liable to fall into a stereotyped set of orders, and to lose all knowledge of the varied produce each season affords. Under the impression that certain provisions are equally dear all the year round, she refrains from ordering what, in her opinion, are luxuries, not reflecting that a glut in the market of choice and able provisions is constantly occurring at unexpected times. It is on these occasions that what might otherwise be prohibited luxuries may be enjoyed by all who have money to spend on ordinary food. The only thing necessary to prevent making bad bargains is to possess a knowledge of every article offered for sale. This can only be acquired by experience, aided by the hints and suggestions which the HOUSEHOLD GUIDE is designed to furnish in every branch of domestic economy.

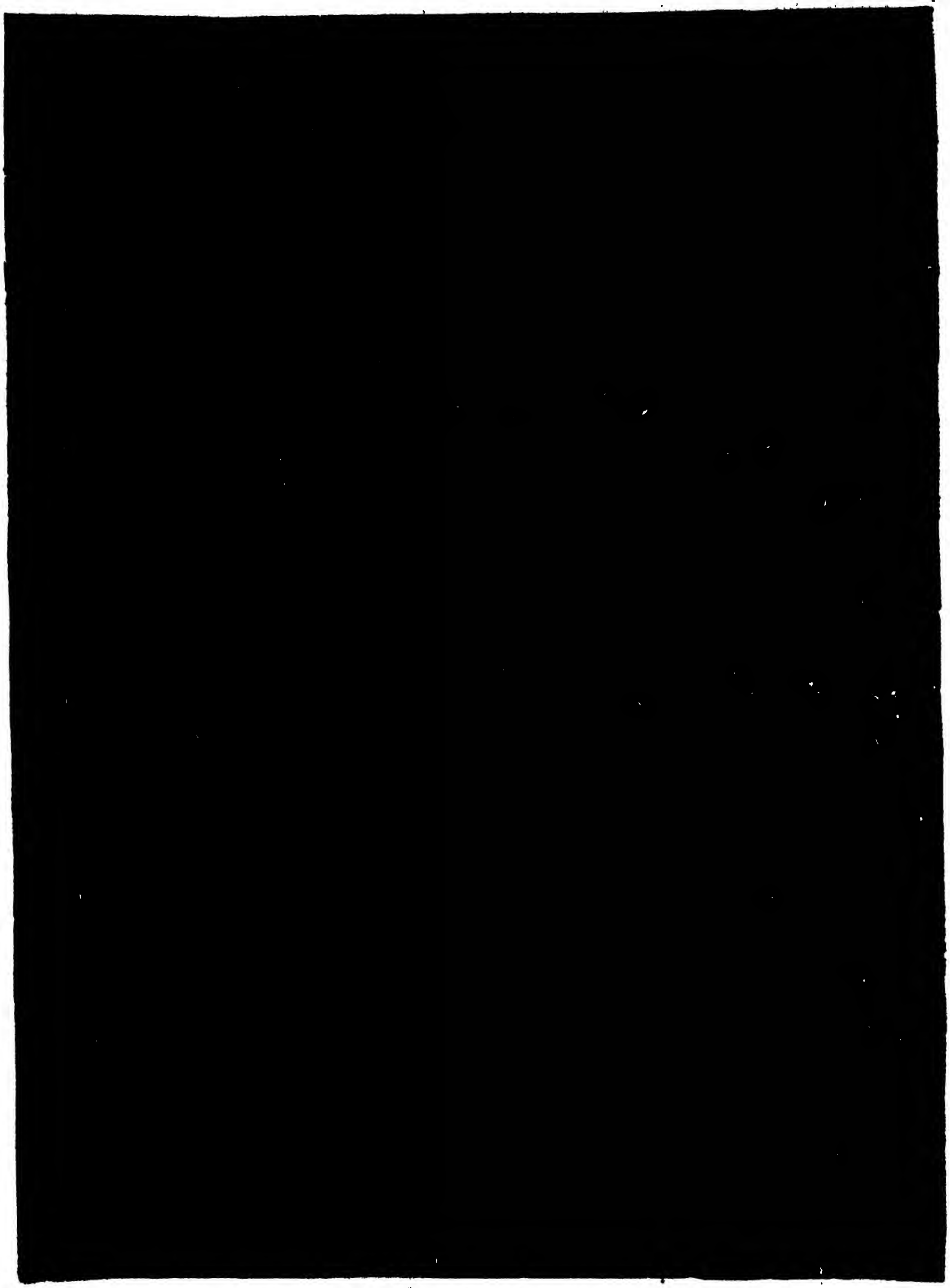
Marketing need not of necessity be the onerous duty which many suppose. To prevent its being so, the mistress should learn by observation what the average consumption of her household is. Having done this, she may easily provide for two or three days in advance. In many suburban neighbourhoods it is now customary for even the best tradesmen to send round certain provisions by their own carts. The prices charged for the goods thus supplied are the same as if ordered from the shop. With many goods, such as greengrocery, butter, and eggs, the plan is convenient, provided the snare of a "booking account" be avoided. With meat, however, the rule does not hold good. A housekeeper who desires to be well and profitably served should select her own meat, see it weighed and trimmed, and take home with her a receipted bill, in which the weight of the meat as well as the price is written. With regard to grocery, if no store be kept in the house, the weekly consumption should be strictly regulated.

People who cannot dispense with booking accounts should be particular not to send verbal orders, neither ought they to pay at one time and book at another. They should either pay at one place always, or "book" always. Our reason for making these remarks is, that mistakes and confusion invariably follow on any irregularity of system.

Another duty on the part of a mistress is the receiving of company, a matter of inclination as well as of duty on the part of many mistresses, provided the husband's income is adequate. In such cases a mistress is bound to regulate her household in conformity with this claim upon her time. If, for instance, she is obliged to be much out of the nursery, she should secure the services of a good nurse to tend the little ones in her absence. If dinner company be kept to any extent, a competent cook is required in the kitchen, and well-trained servants are indispensable, to wait at table. In case the income is insufficient for these requirements, it is a great question whether any attempt to appear better off than one really is, is not more injurious to a man's social position than if he renounced all pretensions to imitate the easy circumstances of his wealthier associates. Most husbands are guided by their wives' judgments in these matters; and it is well that it should be so, because no one else is equally conversant with the expenses and general sacrifices of personal comfort which much company entails.

The engaging of servants is also an extremely important part of a mistress's duties. All indoor domestics are supposed to be subject to her rule, and to take notice to leave from her.

A mistress should be impartial in all disputes which may arise amongst her household, and she should not suffer one servant to take any advantage of another. In order to keep every servant in his or her place, a written plan of work should be given to each domestic on entering service. If any alterations in the rules observed should be necessary, it is better to make the change before a new comer takes the situation than afterwards. It is often found so difficult to alter the order of household proceedings, that there is no help for it but to change every servant to get one's views carried out. This plan is bad, because new servants are naturally suspicious when no one acquainted with the family is left behind.



DESIGN FOR A TOILETTE CUSHION COVER IN POINT LACE

POINT LACE WORK.—X.

THE design for covering the top of a toilette cushion forms the subject of our present illustration, and when so ornamented, the cushion will make an elegant and appropriate bridal or christening present, and, indeed, is at all times a tasteful addition to the dressing-table of a lady. It should be worked in the fine point lace braid, either plain or with small holes at intervals, which gives it a light effect; and it must also have an open edge. The bars may be either dotted or plain, but we give the preference to the former. Full scope is given in the design for the introduction of the various open stitches described in our former articles; the braid, placed on the outside in scallops, should be finished with the worked pearl edging. To mount the work, make a pincushion, in shape similar to the design given, and about two inches deep, stuffed with fine wool, and covered either in rose, blue, or green satin, according to taste, or to correspond with the prevailing colour of the furniture of the dressing-room. A quilling of satin ribbon should be placed round to cover it in depth; and when completed the lace is laid on the top, and lightly tacked here and there to the satin to keep it in its place. It can thus be easily removed when it requires cleaning, and again restored to its former position. The lace may be fastened down to the cushion by a small bow at each corner; but as this conceals part of it, and interferes with the design, the first mentioned plan is generally preferred.

Our next chapter will contain a design for the ends of the white muslin ties now so generally worn by ladies.

CAGE-BIRDS.—VI.

THE CHAFFINCH.

THE Chaffinch (*Fringilla cœlebs*) is about six and a half inches in length, of which the tail measures two and a half inches. The beak is conical and pointed, whitish after its moult, but as it comes into song changes to blue, and when in full song dark blue; the iris is chestnut brown; the forehead, black; the top of the head and nape of the neck, greyish blue; the upper part of the body bluish ash colour; breast, dull pink; back, chestnut brown; belly, white, tinged with pink. The head, neck, and upper part of the back of the female is greyish brown, and the under part of the body dark brown; the breast reddish grey.

The nest of this bird is beautiful, and formed in the most skilful manner. It is almost semi-circular (the shape of a half-globe flattened on the upper part). It is composed of wool and cobwebs, which are woven round the twig; these with bits of moss and small twigs entwined, form the groundwork; the outer covering is formed of lichens, firmly cemented; the lining is composed of hair, thistledown, and feathers. These pretty homes, interwoven with great artistic skill, are built in hedges or upon the branches of fruit-trees or bushes. Each nest contains four or five eggs of a pale purplish buff, spotted and streaked with reddish brown, particularly near the large end.

THE CHAFFINCH.

Nestlings brought up by hand should be fed on a paste composed of soaked bread and scalded rapeseed; if made fresh daily it is not likely to turn sour: if it becomes acid it will injure young birds.

Chaffinches can be fed on rape, flax, and canary seeds; to those fresh caught a few hempseeds cracked will be found useful. During summer fresh water given daily will be found beneficial.

Waterton's account of this bird is pleasing. He says: "When I wander through the flowery fields I see him at almost every step; he is in the fruit and forest trees, on the house-top, and on the ground close to your feet. You may observe him on the stack-bar, and on the dunghill; on the highway, in the fallow-field, in the meadow, in the pasture, and by the margin of the stream. He lives throughout the winter chiefly on the unprofitable seeds which would give you endless trouble were they allowed to lie in the straw and be carried out with it into the land on the approach of spring. The chaffinch warbles on trees and hedgerows from the early part of February to the second week in July." At this time the moulting season commences.

One class of these birds are known as sprightly warblers, and great numbers of them are kept in the lower neighbourhoods of London, where they may be heard singing while persons are walking in the streets, particularly during the spring and summer months. Some of these birds are very cruelly treated; they are placed in small back cages, hung in obscure places, and gradually accustomed to find their food and water in the dark. The pupils of their eyes are then destroyed by a hot iron wire. Birds most highly prized for their song are thus treated, and young birds are raised under them. Some of these birds may be heard singing as freely at midnight as by daylight. They are frequently used for *pegging* (catching wild chaffinches). Destroying the eyes of chaffinches is practised in Germany and France, as well as in England. Some of these birds are kept suspended from the ceiling, with the cage continually in motion, in rooms where other chaffinches in full song are singing; this causes the bird in course of time to sing freely in the streets, when the cage is carried in a handkerchief.

There are several ways of catching chaffinches—that which is called *pegging* is taking a good singing chaffinch in a handkerchief, a store-cage, a stuffed chaffinch (termed a *stale*) mounted on a stick in which a sharp spike is fixed at the end, some sprigs of whalebone, about eight inches long, thin and pliable (at one end of each of which the pointed end of a pin is tightly bound) and some birdlime. The whalebone twigs, when required to be used, are well smeared with birdlime. It was the opinion of old fanciers that some of the best song birds were caught in Epping Forest. Sometimes two persons go out together; one, perhaps, carries a large bag containing the store-cage and articles named, while the other carries the live bird, and tries to obtain fresh-caught birds. At this time the ... sought are perhaps matched, and the cock become... at hearing a bird singing near where the hen is si...

hops in an uneasy manner from spray to spray. As soon as the birdcatchers hear the wild bird, the stuffed bird is stuck in the trunk of the tree, about five feet from the ground; two of the smeared whalebone twigs are stuck about six inches above the stuffed bird, a foot apart. The live bird is then placed at the foot of the tree. The birds will soon commence answering each other. The bird at the foot of the tree will call, and commence singing; this, by degrees, enrages the wild bird, and, seeing the stuffed bird, he ultimately attempts to attack him as an intruder; but the birdlime on the twigs catches his outstretched pinions, and his wings become distended by the birdlime on the whalebone. The male bird is thus caught. Some persons put an india-rubber band, sold at stationers', over the body of the bird, that he may not injure himself.

We shall now give the song of these birds, as described by English and German fanciers. From our personal knowledge of the songs of English birds, we cannot help supposing that the Germans exercise a great deal of imagination in their descriptions; and a translator of Bechstein's work said, "that the notes of the wild chaffinch of this country were finer than any caged ones he ever heard in Germany." The call-notes of the chaffinch are, "pink, pink;" its notes of anger are, "yak, yak;" those of fear, "treef, treef." These birds repeat the same song in summer many times consecutively, and this is denominated by the English fancier a "limb," by the German a "*schlag*." The best limb, lead, and finish, is said to be, "Lull, lull, lull, chockweydo."

The English fanciers had several strains of birds, termed the "chockweydo," the "whitfadoo," and the "kiss-me-dear." Each of these sounds is sometimes repeated several times at the close of the song. Of late years they have other strains.

The Germans have nearly a dozen strains. The first, termed the "double-trill," is so highly appreciated by the inhabitants of Ruhl (in Thuringia) that they have been known to give a cow to obtain, and to travel a distance of ninety miles to catch one singing this song, terminating with "*weingeh*." The other German strains are the "Rider's Pull" (*Reiterzoug*), terminating with "*weingah hadozeeah;*" the "Wine Song," terminating with "*weingeh*," or "*weingich;*" the "Bridegroom Song" (*Brütutigam*) which is not clearly defined; but has the "double-trill" terminating with "*rüdidia;*" the "Good Year Song" (*Gutjahr*), so named from the two last syllables; the "Quakia Song," so called from its last syllables, one with one strain, the other with two; and the "*Pithia*," or "*Trewethia*," terminating with "*trewididae*."

It used to be a practice in England to have public-houses (termed fancy houses), where persons used to take chaffinches, goldfinches, linnets, &c. &c., to get up matches for bird singing. When these matches were agreed upon, information to fanciers in various quarters would be given, and probably vast numbers would meet and bring their birds. The conditions of the match were, the bird who delivered the greatest number of notes in fifteen minutes (each limb being perfect), should be declared the winner. The matches were held in rooms from which all but the two competing birds were excluded. When the match came off, the masters tossed for choice of position. The umpire placed himself, with a stop-watch in his hand, between the birds; the scorers took their positions before the bird they were about to score for, with a slate, and when the umpire said, "commence," they began chalking. When the allotted fifteen minutes expired, the umpire requested them to desist. The scorers' numbers were then examined, and the bird that had sung the greatest number of limbs was declared the winner. When the limb was not entire, it was not allowed to be scored.

HOUSEHOLD LAW.—XII.

LANDLORD AND TENANT (*continued from p. 11*).

Of all these articles mentioned (see page 11 of this volume), the one which is the subject of most litigation is—*a fixture*. There are numberless cases in question some quite contradictory to others. The following, however, is a list which may be taken as being as correct a one as can probably be made :—

1.—*Things held* NOT *to be removable.*

Agricultural erections.	Doors.	Locks.
Alehouse bar.	Dressers.	Millstones.
Barns fixed in the ground.	Flowers.	Partitions.
Beast-house.	Foldyard walls.	Pigeon-house.
Benches.	Fruit-trees.	Pineries (substantially affixed).
Box-borders.	Fuel-house.	Pump-house.
Carpenter's shop.	Glass windows.	Racks in stables.
Cart-house.	Hearth.	Strawberry beds.
Chimneypieces.	Hedges.	Trees.
Conservatories.	Improvements (permanent).	Wagon-house
	Jibs.	Windows.
	Keys.	

2.—*Things held to be removable* (*not being Trade Fixtures*).

Arras hangings.	Cupboards.	Pattens, erections on.
Barn set on blocks.	Dutch barns.	Pier glasses.
Beds fastened to ceiling.	Furnaces.	Posts.
Bells.	Furniture, fixtures put up as.	Presses.
Bins.	Granary on pillars.	Pumps, slightly attached.
Blinds.	Grates.	Rails.
Bookcases.	Hangings.	Ranges.
Buildings set on blocks, rollers, pillars.	Iron backs to chimneys.	Sheds.
Cabinets.	Iron chest.	Shelves.
Chimney-backs.	Iron malt mills.	Sinks.
Chimney-glasses.	Iron ovens.	Slabs of marble.
Chimney-pieces (ornamental).	Jacks.	Stable on rollers.
Cider mills.	Lamps.	Stoves.
Cisterns.	Looking-glasses.	Tapestry.
Clock cases.	Malt mills.	Tubs.
Coffee mills.	Marble slabs.	Turret clocks.
Cooling coppers.	Mash tubs.	Vessels, &c., on brickwork.
Coppers.	Mills on posts.	Wainscot fixed by screws.
Cornices (ornamental).	Mills *laid* on brick foundation.	Water tubs.
	Ovens.	Windmill on posts.

3.—*Trade Fixtures decided or said to be removable.*

Accessory buildings, *i.e.*, accessory to a removable utensil.	Fruit-trees planted by nurserymen.	Pumps.
Brewing vessels and pipes.	Furnaces.	Reservoirs.
Cider mills.	Gas pipes.	Salt pans.
Cisterns.	Glass fronts.	Shelves.
Closets.	Iron safes.	Shrubs planted for sale.
Colliery machines.	Machinery let into caps or steps of timber; or fixed with screws to the floor, or to sockets of lead let into the stone-work of the building.	Soap works (fixtures in).
Coppers.	Partitions.	Steam engines.
Counters.	Plants and pipes of brewers, distillers, &c.	Stills.
Cranes.	Presses.	Tram plates fastened to sleepers not let into the ground, but resting thereon.
Desks.		Trees planted for sale.
Drawers.		Varnish-house.
Dutch barns.		Vats.
Engines.		
Fire engines.		

There are also certain fixtures, as to which the right of removal is unsettled, although it has been the subject of discussion in determining some of the cases above. Of these doubtful articles, the subjoined is a list :—

Brick kilns.	Greenhouses.	Storehouses.
Frames in nursery grounds.	Hothouses.	Tables fixed or dormant.
Furnaces in smelting houses and glass houses.	Lime kilns.	Verandahs.
Glasses in nursery grounds.	Malting floors, stoves, &c.	Wind or water mills.
	Pavements.	Workshops.
	Sheds.	

Up to this point we have considered the law of landlord and tenant from the landlord's side, having shown what are his duties and obligations, and what his remedies

whilst on page 338 of the second volume we gave a number of forms for agreements and leases which would bind both parties to the contract. In this paper we propose to lay before the reader certain facts which will, we hope, give him some notion of what a tenant's remedies are as against his landlord. As the law of landlord and tenant is one of the most complicated in the whole of our legal system, about which grave and learned lawyers have written much, have pondered more, and have argued the most, we cannot, in a series of articles of this nature, attempt to do more than give a mere outline of its principles, trusting, however, that should any of our readers be sufficiently interested in them to learn more, they will ask us for further information on any point which they may consider not sufficiently well explained. Our authorities for this article are the works of Messrs. Woodfall, Smith, Holdsworth, and Stedman and Lyon.

A tenant has a remedy against his landlord if the latter has been guilty of any of the following errors :—1, Irregular Distress; 2, Excessive Distress; 3, Illegal Distress. In the first two cases, of course, as may be inferred from the words, the landlord has had a right to make a distress; but the error for which the tenant has a remedy is some irregularity in the proceedings. In the third case there is no right to bring a distress at all.

Where the rent is under £15, the following section of an Act, 2nd and 3rd Victoria, cap. 71, will apply :—

"That on complaint made to any of the police magistrates, by any person who shall within the metropolitan district have occupied any house or lodging by the week or month, or where the rent does not exceed the rate of £15, by the year, that his goods have been taken from him by an unlawful distress, or that the landlord, or his broker or agent, has been guilty of any irregularity or excess in respect of such distress, it shall be lawful for such magistrate to summon the party complained against, and if, upon the hearing of the matter, it shall appear to the magistrate that such distress was improperly taken, or unfairly disposed of, or that the charges made by the party having distrained, or attempted to distrain, are contrary to law, or that the proceeds of the sale of such distress have not been duly accounted for to the owner, it shall be lawful for the magistrate to order the distress so taken, if not sold, to be returned to the tenant on payment of the rent which shall appear to be due, at such time as the magistrate shall appoint; or, if the distress shall have been sold, to order payment to the said tenant of the value thereof, deducting thereout the rent which shall so appear to be due: such value to be determined by the magistrate; and such landlord or party complained against, in default of compliance with any such order, shall forfeit to the party aggrieved the value of such distress, not being greater than £15: such value to be determined by the magistrate."

We will deal with the three heads *seriatim* :—

1. *Irregular Distress.*—This is the case where, although there is rent due, and a distress levied, the distrainer has either distrained such things as are not legally liable to be distrained, or has not acted properly with his disposal of them. The most frequent instances of irregular distress are distraining on fixtures; selling without having given notice, or within five days from the notice; selling crops before they are gathered; selling without appraisement, or for less than the best price, and not leaving the overplus in the hands of the sheriff.

So also, when a distress is lawfully made, it is unlawful to detain or sell it after the tender of the rent with proper costs, or to sell after the goods have been replevied. If the damages claimed be under £50, the tenant can proceed in the County Court. There must, however, be sufficient evidence to prove that the plaintiff has suffered actual injury or loss, or otherwise he will in all probability find that the jury will give him a farthing damages, and he will have to pay his own costs. It must also be understood that the landlord will not be liable for acts done by a bailiff or agent who has exceeded his duty, unless the former has subsequently ratified the latter's acts.

THE HOUSEHOLD MECHANIC.—XXXVI.

GLAZING AND ORNAMENTAL GLASS.

THE process of glazing is a very simple one, yet very few persons avail themselves of the convenience, as well as the saving that may be effected by putting in a square of glass. To put in glass proceed as follows :—Take an old broken knife, called by the painters a hacking-out tool (a carpenters' common chisel will do as well), and a good working hammer. With the knife scrape off a piece of the old putty to make a commencement, then holding the knife firmly in your left hand, with the blade pointing upwards or sideways as the case may need, follow up the knife with repeated gentle raps on the top of the handle, thus running off the old putty from the outer edge of the broken pane of glass. Clear away the pieces of glass, taking care not to cut your hands; and when this is done repeat the same process with the knife and hammer, scrupulously removing from the rebate or groove of the window-sash all the old putty. This being done, and having worked the putty well—rubbing it between the palms of your hands to render it soft and pliable—spread some of it over the rebate of the sash you intended to glaze, taking particular care to lay an extra amount in all the corners. Set in your glass, and putty it in to a depth not exceeding the depth of the wood of the sash on the other side, and render the putty smooth, by working it along with the knife and with your finger. When the glass is set in, cut off cleanly any portions of putty which may have squeezed through, and fill up any small cracks or interstices that may remain between the glass and the sash. In the case of glazing sashes painted in colours, it is a general practice to mix up some colour with the putty; but this is a tiresome process, which involves the addition of more oil to the putty, and for a small job it is neither worth the trouble nor expense; but to remedy this inconvenience, you may rub upon the putty while freshly laid on some powder of the same colour as the work : for example, red ochre for mahogany work; and this plan may also be adopted for the ordinary window, which is generally painted black, for which lampblack, or even blacklead, rubbed over the putty while moist will suffice.

The glass can be purchased, cut to measure, at the rate of 2d. per foot; but should the glass chance to have been cut too large for the purpose required, or should you desire to cut a smaller pane from a larger broken one, tie a worsted thread steeped in spirit of turpentine or other inflammable substance round the glass, and set fire to the thread, when the glass will break as desired. The application of a red hot wire round the glass will do as well; and if it does not crack immediately pour some cold water upon it.

We have given the foregoing simple directions on window glazing for the use of the general housekeeper, to enable him to perform an operation of frequent occurrence; for the skilled household mechanic, however, about to undertake superior and larger work, such general remarks will be found insufficient, and we therefore furnish him with more complete particulars.

Glass.—There are several kinds of glass, varying both in colour and quantity. The glass chiefly employed for superior purposes is called crown-glass. Of this there are four classes: the best, seconds, thirds, and fourths. Glass can be purchased in any quantity at the retail warehouses; but the best plan for those who require a considerable quantity, is to purchase it by the crate. A

crate of the best crown may be purchased for about £3 10s. or £3 15s.; of the second quality for about £3; of the third for about £2 8s.; and of the fourth for about £2 2s.

The glass which has become most generally used for window-purposes is sheet-glass, which has a more greenish cast than crown-glass, and is of little more than half the value; the extent of this greenish cast, upon which the quality depends, is to be distinguished by looking at the cut edge of the glass; but, it must be remembered, that all glass has more or less of a greenish cast. Of this glass there are four classes, but the third and fourth are those usually employed. The third is 45s. or 46s. per crate; and the fourth, of which there are three subdivisions, is, per crate, 36s., 34s. 6d., and 32s. 6d., respectively. Plate-glass, which is more expensive, is now generally used for shop windows in the best streets and thoroughfares, and for the better class of houses, being almost colourless and sufficiently thick to admit of being polished in the highest degree. One of the particular advantages of this glass is that its tables admit of pieces being taken from them much larger than can be obtained from those of any other kind of glass. It is sold by the inch, the price per inch increasing in proportion to the size of the piece. For the purpose of roofing rooms or offices built in back premises where light from the roof is required, *waved plate-glass* is very desirable, as it is thick and strong, and also prevents the annoyance of being overlooked. It presents an appearance as though it had been indented with wires, and is sometimes marked with indents of a lozenge-shape. We have found it useful in roofing the verandah of a side door, as it possesses the advantage over boarding or zinc-work, of admitting light.

Ground or rough-glass is very serviceable for office purposes and for shutting out unpleasant views from back or side windows. It does not, however, admit nearly so much light as clear glass, and consequently the windows require to be of much larger size. This glass will not serve for roofing, as it is too thin and easily broken. Plain ground-glass is made of ordinary clear glass, the polish being taken off by means of rubbing it with emery or sand and water; this effect may be imitated by rubbing over the surface with putty, letting it dry, and rubbing it over a second time; which method, however, like most easy or idle ones, is not to be recommended, as after a time the putty will wear off in parts and become dirty, when the window must be cleaned and the process repeated.

Coloured Glass. — Coloured glass, whether plain or figured, may be used with very pleasing effect, and is not nearly so expensive as generally supposed. The price of handsome ruby glass, cut to size and measured, is generally at the rate of 9d. or 10d. per foot, but if the sheet or table be taken, it may be purchased at 7d. or 8d.; blue is 1d. per foot cheaper than ruby; amber, the same price as blue, and deep bottle green is 2d. dearer. Coloured glass may be purchased at a higher, as also at a lower rate than we have named, but the class of goods we describe are such as we can recommend, combining sufficient quality with economy. (See also article on page 204, vol. ii.)

Glaziers' Tools.—The tools required by the glazier are a stopping knife, a hacking-out tool, a hammer, a diamond, a rule, several straightedges, and a pair of compasses. The stopping knife resembles a common dinner knife, with the blade reduced to about three inches in length, and ground away on each side of its edges to an apex. This knife is employed to imbed the glass in the rebates or grooves, and for spreading and smoothing the putty. The hacking-out tool may be made of any strong old broken knife ground sharp at its edge, and is used for clearing out the old glass and putty from the rebates or grooves of the sash intended to be occupied by fresh squares of glass. The hammer is similar to those of a smaller size used by other workmen; the kind, however, which we consider the most suitable, as giving the best modulated blow and with the greatest effect in the exact direction desired, has a head full two inches in length on either side of the handle, the rounded end being at the point not quite so large as a sixpenny piece, the other end being of the form of a wrench, the whole length of the handle eight inches, while the iron shafts which clasp the handle are each five inches. The diamond or pencil diamond may be said to be the chief tool of the glazier, as it is the only one of special character or value which he requires. Of this instrument there are two kinds—the old-fashioned and the patent. The old-fashioned consists of the gem simply set in a conical shoulder, placed in a rosewood handle flat at two sides, so as to fit between the fore and middle fingers. (See the section on Cutting-out, in the article on "Glass Painting," page 249, vol. ii.) Difficulty, however, is experienced in cutting with it, by reason of uncertainty in placing the diamond at the proper angle with the glass to effect its cutting and not scratching. The patent pencil diamond has the gem set in a parallelopiped shoulder, the right angle of the lower end being cut off, so as to form the proper angle at which the diamond will cut. A screw is placed at one point, to prevent the upper end of the shoulder going too far, and to render shifting the handle in the hand unnecessary when placed on the glass against the straightedge or rule. The gem of this instrument, which is about the size of a pin's head, is a spark or fractured chip of a diamond in its unpolished state, set in a nipple of brass or copper, the part used for cutting being of trapezoidal shape. A large piece of diamond is not so good for this purpose as a small piece. In using this instrument care should be taken not to press too heavily on the diamond, as this not only spoils it but causes it to scratch instead of cut the glass. A diamond will last, with moderate wear and with careful use, a long time, although with excessive wear it will become worn out after some months' use. When the diamond has become disabled, it may be taken out, turned, and reset, when it will wear about half the time which it did in the first instance. Glass may also be cut by hard minerals, although the diamond has been adopted as the universal method. The rule is of the usual kind, divided into thirty-six inches, used by the glazier to measure the glass and to divide the tables into the required sizes. The straightedges are laths or slips of hard wood of any length, about two inches wide and a quarter of an inch thick, used as a flat ruler for the pencil diamond to run against; and the compasses are for the purpose of aiding the diamond pencil to cut the glass into any curved or peculiar shapes, one of the legs of the compasses being formed with a socket so as to receive the handle of the diamond pencil. To effect good workmanship in glazing it is necessary that the glass be of full size, so as to fit fully into the rebates or grooves, for otherwise it will readily crack when any pressure is applied on either side of the window, either by pressing in cleaning, or by the force of the wind, &c. In the case of large panes, a small brad should be neatly driven into the sash at each corner when the glass is partially puttied in, and afterwards concealed with putty.

Putty.—Putty for glazing is commonly a composition of fine whitening and linseed oil only, although the best putty, which is to be preferred, contains the addition of whitelead.

Cutting and Boring Glass.—Glass may be cut or bored with great facility if only the cutting instruments be previously wetted with a solution of camphor and turpentine.

In our next paper we shall take up other phases of this useful art.

ODDS AND ENDS.

Soda Water.—The soda water which is manufactured in London seldom contains much, if any, soda, and is usually little more than plain water mechanically saturated with fixed air, and when taken is found to distend the stomach, which causes the action of the digestive powers to be diminished. Soda water greatly relieves acidity of the stomach, which frequently follows a too great indulgence in the use of wine, and if fifteen or twenty grains of carbonate of soda be put into a large glass, and the ordinary soda water be poured upon it the result would be more effectual than if the plain soda water be used alone, as it will not only allay the irritation, but invigorate the muscular coat of the stomach, and should be taken before breakfast or an hour or two before dinner. The best soda water contains a small portion of soda, which corrects acidity of the stomach, together with a portion of carbonic acid gas, some of which escapes and some remains united in it; it is not poured out for some time after. Soda water should not be made in copper vessels, as the carbonic acid gas is a powerful solvent of all metallic substances. There are soda powders sold by chemists as substitutes for the soda water, and these, when mixed with water, also cause an effervescence; but the constituent parts are different in quantity and quality. A large portion of alkaline tartrate is imbibed, which increases the irritation rather than removes it, and this to some individuals must be very injurious.

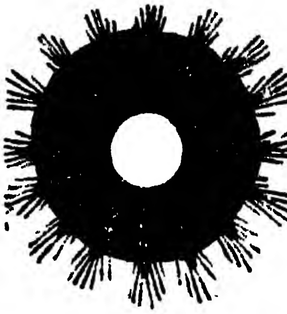


Fig 4.

Fig 3

Fig. 1.

Fig. 2

Natural Ornaments.—The most elegant of flowerpot covers can be made of materials furnished by the hand of Nature. Cut the shape of the flowerpot in bonnet board. Cover it with upright rows of lavender, arranged as close together as possible. Tack them firmly from A to B, and slightly from C to D, Fig. 1. When this is done, untack them from C to D, and with some half-inch wide cherry-coloured ribbon, run them in and out, or, as some call it, over and under, missing half an inch each time. Take the ribbon round a second time, passing over the stalks omitted before and under those previously crossed—reversing the running, in fact. Begin at the top, close to the tacking from A to B, and continue quite to C and D. Fasten off the ribbon securely. Untack the stitches that attach the lavender to the card from A to B, and take it off. It is now complete. The card will serve as a frame for several. The lavender flowers stand upright above the card when tacked to it, and the ribbon should commence just below the flowers. A bow, or rosette and ends when the cover is complete, look pretty put on each side, like handles. Corn, barley, or oats make still prettier flower-pot covers. Plait either of these with new, bright green satin ribbon, inch wide, leaving equal spaces in running it in and out to its width. (Fig. 2.) Sewn permanently to a dwarf circular piece of cardboard with a bottom stitched to it, the barley heads alone and one inch of stalk make pretty bottle-stands for the table. Cover the card first with silk or coloured calico. Bind round the inch of the stalks a band of inch wide satin ribbon, and cover the join with a little bow. Make a stitch on the opposite part of the circle to keep it from slipping off. (See Fig. 3.) Lamp mats can be made of the same cheap materials. Take a large round of card, cover it with any pretty bright-coloured material. Cut corn or barley off short at the head, and sew it all round the edge of the mat as close as possible. But first cover the card with green calico, very dark, tacked all round the card. Do not cut out the centre of the card. It should be lined before sewing on the barley. If the green mat is covered with artificial moss sewn on before the barley, it has a still prettier effect.

Yankee Cakes.—Beat two eggs and a cup of sugar together, then melt a cup of butter, or other shortening, a teaspoonful of carbonate of soda dissolved in a cup of sour milk, a little nutmeg or essence of lemon. Stir all these together, then keep stirring in flour until as thick as a stiff batter; heat awhile, then turn it into a well-greased dripping-tin, and put into the oven at once.

German method of keeping Cucumbers for Winter Use.—Pare and slice (as for the table), sprinkle well with salt, in which leave the cucumbers twenty-four hours; strain the liquor well off, and pack in jars, a thick layer of cucumber and then salt alternately; tie close, and when wanted for use, take out the quantity required, which rinse in fresh water, and dress as usual with pepper, vinegar, and oil.

American Sweet Pickles.—Seven pounds of damsons, three pounds of sugar, one ounce of stick cinnamon, one ounce of cloves, one pint of vinegar. Scald the sugar, spice, and vinegar three days in succession, pouring the syrup thus made on the fruit, and letting it remain overnight. On the fourth day scald all together. Pears, apples, peaches, cherries, &c., can all be done in this way, and will be found a delicious addition to the tea-table. A little cochineal in a bag dropped in the jar will improve the colour greatly.

Worth knowing.—Boil three or four onions in a pint of water; then with a gilding brush wash over the frames of your picture and chimney glasses, and rest assured that the flies will not light on the articles washed with the solution. It will do no injury to the frames.

Cure for a Scald or Burn.—Four ounces of olive oil, four ounces of lime water, mix, and use as an embrocation.

HOME-MADE WINES.—II.

RASPBERRY, GOOSEBERRY, GINGER, RED CURRANT, ORANGE, AND PARSNIP WINES.

Raspberry Wine.—Take the ripe raspberries, and after husking and bruising them, strain them through a canvas bag as before. Boil the juice, and to every gallon add one and a half pounds of lump sugar, add three or four whites of eggs, and let the whole boil a quarter of an hour, skimming away the froth as it arises. When it is cool, allow it to settle, pour it into the cask, and add sufficient yeast to make it ferment. When fermentation has taken place, add a pint of white wine to each gallon, and suspend in it an ounce of bruised mace in a bag. The wine will be ready for use in about three months.

Gooseberry Wine.—About ten gallons of gooseberries having been bruised in a tub, should be left in for twenty-four hours; after this squeeze the juice from the pulp in a canvas bag, as before described, return the pulp remaining in the bag to the tub, and mix with it five gallons of tolerably hot water. Cover the tub well up, and after about twelve hours have elapsed, again subject the pulp to pressure, and mix the liquor obtained with the original juice. To every five gallons add twelve pounds of white sugar, which must be perfectly dissolved, and leave it to ferment. In proportion with the ripeness of the fruit should be the temperature of the weather; if necessary the liquid should be placed near the fire. After about two or three weeks, when the fermentation has gone down, the liquid is fit for the cask, which should be well bunged. It will be ready to tap in a few months.

Ginger Wine.—Put nineteen pounds of sugar to seven gallons of water, boil it for half an hour, taking off the scum as it rises. Bruise nine ounces of the best Jamaica ginger, and add it to a small quantity of the liquor; mix altogether. Have nine pounds of raisins chopped very small in a nine-gallon cask, with one ounce of isinglass and four lemons cut into slices, and with the seeds removed. When the liquor is nearly cold, pour it into the cask containing the raisins, &c., adding half a pint of fresh yeast; leave it unstopped for three weeks. In three months it will be fit for bottling. You will have one gallon of the sugar and water more than the cask will at first hold; this must be kept to fill up the cask as the liquor works off. The raisins should be two-thirds Malaga and one-third Muscatelle. The best seasons for making ginger wine are the spring and autumn.

Red Currant Wine.—Take three gallons of ripe red currants, and pick them from the stalks, press out the juice as above directed, and infuse the residue in four and a half gallons of cold water, well and repeatedly mixing to insure equal diffusion; press out the liquor, mix it with the juice, and add fourteen pounds of loaf sugar. When the sugar is dissolved, transfer the whole to a cask large enough to leave some space unfilled, put in the bung and bore a hole through it with the gimlet, and allow the cask to stand where the temperature is not less than 70°, for a month—by that time the fermentation will have greatly decreased. Then add three pounds of sugar, dissolved in two quarts of warm water, shake the cask well, and bung as before. In about six or eight weeks, on listening at the bunghole, your ear will inform you that fermentation has ceased, then rack off the clear liquor from the sediment and mix with it a quart of the best French brandy. Set it by in the cellar for about two months, when the liquor is again to be racked off into a clean but not new cask, which should be quite filled; it must now be tightly bunged down, so as to exclude the air perfectly, and be preserved for three or four years at a temperature of 70°. When necessary the cask should be for this purpose kept near a fire. White currant wine may be made in the same way, with two ounces of bruised bitter almonds mixed in the fermenting liquor.

Orange Wine.—Add one pound of Malaga raisins, and two pounds of clayed sugar with the juice and peel of an orange to each gallon of water; add to every 100 gallons four pounds of Rhenish tartar. If you wish to make superior wine, to every gallon of water add two pounds of honey, one pound of Malaga raisins, and the juice and peel of a large orange. To every 100 gallons add four pounds of Rhenish tartar. Steep and press the fruit, and expend the tartar in setting. Add the orange-peel and juice when the last stage of fermentation is in progress, that is in cutting.

Parsnip Wine.—Four or five pounds of parsnips will be required for every gallon of the wine. Place these in a tub of water till the dirt is loosened; then scrub it off with a brush, as they cannot be scraped with a knife; they must be thoroughly cleaned, and any spongy or decayed portions must be carefully cut out. Take off the top and as much of the leaves as may appear green, then split the roots evenly into four pieces, cutting these again into pieces three inches long. From four to five pounds of the cut root are to be put to each gallon of wine when finished. For six gallons of wine, put into a copper eight gallons of water, add the parsnips, cover the copper, and light a fire. Bring the liquor to a boil, and allow it to boil till the roots become tender. Try them with a fork, but do not boil them till they are pulpy. An aromatic odour will arise, and this must escape; therefore the cover of the copper must be removed, for it is the vegetable extractive which is required, and not the pungent essential oil. The latter, if retained, would render the liquor offensive. The boiling being omplete, strain it through a hair sieve into a tub, but observe the precaution not to produce turbidity by bruising the roots; add immediately three ounces of powdered *white argol*, and stir the whole for some minutes to promote the solution, and then introduce eighteen or twenty pounds of loaf sugar. When this is dissolved, let the liquor remain uncovered till it be reduced to 70°. It is always desirable to avoid the use of beer-yeast for wine; but the infusion of parsnip with white sugar will not ferment freely without artificial assistance. Therefore, the tub or open cask in which the first fermentation is to be effected, should not only remain in a room or cellar, where from 50° to 55° may be kept up, but a round of bread cut off a half-quartern loaf, three-quarters of an inch thick, should be toasted well and be moistened with good yeast, but not so much saturated as to make it too bitter. Put this toast into the liquor; cover the vessel with a flannel, and by degrees the ferment will be diffused over the surface, and produce frothy bubbles, when it will be safe to take up a bowlful and return it gently, so as to agitate the mixture in a trifling degree. As the fermentation proceeds, the agitation with the bowl may be increased in a slight degree, till in three or four days the whole may be forcibly mixed up. Yeast will be formed, and this, when it covers the surface, must be skimmed off. When real yeast is formed, and has been removed once or twice, it will be time to turn the wine off into a sweet or dry six-gallon cask; in doing this the person must consider whether he wants a rich sweet wine or a perfectly *dry wine*. To prepare the former, let the barrel be filled up to the bung, so that the liquor flow over, and let a reserve of a pint or two be kept in a wine bottle, tying the neck over with a piece of bladder skin. Place a dish under the barrel to receive the yeast and discharged matter, and in a very short time much frothy matter will flow down the sides and be caught. Keep the barrel filled with the reserve, and when the wine has become quiet, cover the hole with a piece of brown paper, and then, if that remain undisturbed for a week, the cask may be safely bunged down, *loosely at first*, but quite tight when the "fretting" becomes almost imperceptible. Wine so prepared ought to be racked off in the clear settled weather of March, when the wind is at the north.

quiet and yet cold. To acquire a dry wine, let two inches of space be left in the barrel at the time of tunning, and instead of permitting the liquor to overflow, cover the bung-hole with a tile or slate, and frequently stir in the yeasty froth. But one precaution must be observed. The fermentation in the open tub ought to be continued a day or two longer, so as to permit the wine to raise as much yeast as possible; and this should be skimmed off, in order to purify the fluid from every particle of *beer-yeast*. To prevent acidity, let the bare wood above the wine be coated with a stiff cream of lime, and keep the flannel cloth over the top. Skim the liquor before it be tunned, and if any surplus quantity remain, reserve it in glass or stone vessels, tied over with bladder skins, but do not add one drop to the wine till *that* becomes tranquil.

THE TOILETTE.—XVI.

THE TEETH (*continued from Vol. II., p. 364*).

We give a few receipts for sweetening the breath, as we promised in our last article on this subject.

Elixir of Roses.

Cloves	12 grains.
Cinnamon	40 grains.
Ginger...	3 drachms.
Spirits of wine	1 pint.
Oil of orangepeel	12 drops.
Otto of roses	3 drops.
Essence of peppermint	1½ drachms.

These are to be mixed and allowed to soak for a fortnight. Then the liquor is to be filtered off for use. A small quantity is to be used to wash out the mouth in about as much water as is preferred.

There is another, which is held in great repute by some persons. It bears, as far as we know, no particular name, but is recommended by Cooley, who is an undoubted authority in the matter of perfumes and the like. It is made as follows:—

Balsam of Peru	2 drachms.
Camphor	½ drachm.
Essence of musk	½ drachm.
Liquor of ammonia	½ drachm.
Tincture of myrrh	3 drachms.
Spirit of horseradish	1½ ounces.

Mix together. A teaspoonful is to be added to a wineglassful of water, and the mouth to be rinsed freely with the solution.

Wash for Smokers.

Chloride of lime	½ ounce.
Water	2 ounces.

These are to be well shaken together for half-an-hour, then filtered. To the product is to be added—

Spirits of wine...	2 ounces.
Orange-flower water	1 ounce.

For use, add a teaspoonful to half a tumbler of water or less, and rinse the mouth.

Another wash of the same kind is made by mixing—

Liquid chlorinated soda	1 ounce.
Distilled water	19 ounces.

A teaspoonful being put into a tumbler of water for use.

Wash after taking Acid Medicines.—A great many people think, and think rightly, that the taking of acid medicines injures the teeth. Medical men direct these medicines to be taken through a glass tube; but the safest way is to wash the mouth out with some alkaline fluid, so as to at once neutralise the acid left in the mouth about the teeth. The following is an alkaline lotion for the purpose:—

Alkaline Lotion.

Bicarbonate of soda	4 drachms.
Distilled water	8 ounces.
Eau de Cologne	2 drachms.
Aromatic spirit of ammonia	1 drachm.

Mix. The mouth should be rinsed out, immediately after any acid medicine is taken, with a mouthful of this solution.

Teething and its Attendant Troubles.—We have already spoken of the times at which the several temporary and permanent teeth make their appearance, and of the process of teething (see page 333, vol. ii.), but it remains for us to point out some of the minor ailments which occur in connection with that process, and cause oftentimes no little alarm to the parents, and considerable bodily discomfort to the little sufferer.

But, first, it may be said that meddling too much with the child's health or condition at the time of teething, unnecessarily dosing him or her with medicines, and especially disturbing the gums through which the tooth is passing on its way to the surface, may be found productive of more harm than good. The conditions which call for interference are few, and they will be mentioned in a moment. Specially it may be observed, that it is only when the gums are red, hot, swollen, and tender, and the tooth is nearly coming through, that the lancet should be brought into use. The reason of this will be readily comprehended when we state the exact changes that go on in the gum prior to the tooth coming through it. As the tooth comes nearer and nearer to the surface, it presses away the blood out of the gum more and more; the result of this is, that the gum softens up, is starved of its blood, and gives way gradually before the advancing tooth. The tooth does not actually cut through the gum so much as find the gum gradually softening away before it. So long as the gum remains cool and pale, and not swollen, so long is it quite unnecessary to help the tooth through by lancing the gums. It is only in those cases where, from the rapid advance of the tooth forward or other cause, the gums get irritated, swollen, dry, and tender, that it becomes necessary to lance the gums to soothe the inflammation, for the bleeding of the gums allays irritation, which often leads to convulsions or other nervous symptoms. If the gums are repeatedly lanced when the tooth is not ready to come through, we merely cause a scar to be formed, which may oppose the tooth more than would otherwise be the case. This explanation, we hope, will induce those who have hitherto indulged in a meddlesome interference with the operation of teething to have recourse to it in the future only in such cases as we have above described—only such, in fact, as present the signs of distinct irritation and inflammation in the gum through which the tooth is making way. Now the ailments that arise during teething, and which call for the exercise of a little domestic medicine or surgery are, febrile disturbance consequent upon the irritation of the gums by the coming tooth, or as it has been termed, "tooth fever," disorder of the bowels, affections of the skin, convulsions, and other nervous symptoms. A few words relative to these different occurrences will be probably acceptable to parents and others in charge of children.

Irritative Fever.—There are few, if any, children who entirely escape an attack or two of feverishness when they are teething. But some children escape with so little disturbance of the general system that the teeth may appear without attracting special attention, the nurse or mother being surprised to find on a chance glance at

the mouth that this or that or more than one tooth has been "cut." It is thought that the two central incisor teeth, and the two lower eye or canine teeth are cut with the greatest amount of fever. In a large number of cases the child is only slightly feverish, peevish, restless, and has a slight cough. Under these circumstances the tooth may not be pushing through the gum, but the feverishness may result from the enlargement of the tooth in the socket. The irritability of the tooth is relieved by the biting of a ring, and by the gentle friction of the gum. But it is not now that any anxiety need be felt, but only when fever runs high, the skin is dry and hot, the gums are hot, dry, and swollen, and there are nervous twitches, and the teeth are on the point of being "cut." Now a very simple plan of treatment may be laid down for all such cases. When the irritative fever is not severe, little need be done. But it will be as well to see that light food is taken, good milk given; that the bowels be regular, a little fluid magnesia being exhibited, if necessary, and the kidneys being carefully watched to see if enough water is made. The writer, who has had no little experience in these matters, lays very great stress upon the due and sufficient action of the kidneys in all cases in which there is constitutional disturbance in connection with teething, and he has found every success attend the administration of a little sweet spirits of nitre, two or three drops several times a day to an infant, where the amount of water passed is deficient. And this is all the more important in cases of severe general disturbance and fever connected with teething. If the fever should run very high, and the bowels be confined, there is certainly nothing which is so sure of doing good as a small dose of calomel. For an infant of about six months old the following may be given :—

Calomel	... ...	½ grain.
Jacobs' powder	... ...	½ grain.
Nitrate of potash	... ...	½ grain.
Sugar	... ...	2 grains.

To be given night and morning. Three or four powders may be given. The majority of teething powders in general use contain a little calomel.

Then comes the question of lancing the gums. This operation must be performed if the gums are hot, dry, swollen, and tender. Whenever the child is very feverish and heavy, and especially if there are twitchings of the muscles or squinting, at once a medical man should be sent for, as the case may become serious; and this rule is all the more important if other children of the same family have suffered from convulsions or severe illnesses during teething. One word more about irritative fever. If the skin be hot and dry, and the child be restless at night, a warm bath will often soothe most decidedly, and bring refreshing sleep.

Tooth Rashes and Eruptions.—Various eruptions of the skin are brought out by the irritation of the system connected with teething. But a great deal of misunderstanding exists about their true nature and cause. The commonest form of eruption is what has been known for many a long day as the "tooth rash," "red gum," or "red gown." The rash consists of little red points in some, and red points surrounded by a bright blush in other cases, collected together in patches on the face, the arms, the chest, and the trunk of the body. In days of yore, when children used to be more wrapped up than they are now, tooth rash was much more common than at the present time, and the reason why it occurs during teething is this—that the feverishness connected therewith leads to a hot and congested skin, and so to the occurrence of these little red inflamed places known as tooth rash. The cooler the babe is clad, therefore, the less likely is the skin to exhibit the tooth rash during teething. This tooth rash is of no consequence beyond being an index that the child should be kept as cool as possible, and that some little alterative should be given to correct the feverish state of the blood; a little fluid magnesia is as good as anything. If the rash be extensive, and if it itch much, it may be as well to apply to it some cooling lotion. The following prescription will be found very serviceable :—

Prepared chalk	... ...	2 scruples.
Pale calamine powder, finely levigated and washed	... ...	2 drachms.
Glycerine	... ...	2 drachms.
Rose-water	... ...	4 ounces.

To be applied several times a day with a camel's-hair pencil.

Another form of skin affection which sometimes occurs in connection with teething is very similar to erysipelas; it is *erythema*, from a Greek word signifying red; in fact, a red blush that slightly burns or itches, the skin peeling as it goes away. It may be treated as the last. (*See also Vol. II., p.* 279.) Lastly, what is termed scaldhead is generally considered to be caused in many cases by teething. Now, in the first place, a great number of different things have been mixed up together under the term scaldhead, and these will be found fully described in our article relative to the skin. All we need say here is, that the teething itself is only an excitant of these eruptions, or rather the one particular eruption properly called scaldhead, in which pustules first appear, to be followed by a discharge which dries into light yellow crusts, covering over a red and inflamed surface. The patient is in the first instance predisposed to the occurrence; the child's blood is in a fit state to give rise to the eruption, and the general disturbance caused by the teething leads to a disorder of the circulation of the skin in different parts, which favours the outbreak of the eruption. This is important to remember, because two things are necessary to the cure of this scaldhead. First, we must remove the irritation and disorder set up by the teething in the usual way; and, secondly, we must give such remedies as will alter that particular condition of blood or constitution without which the eruption could not occur. In nine cases out of ten we may discover that in those children in whom this eruption occurs about the face and head, forming large scabbed masses, covering extensive tracts sometimes, that there is a lymphatic or scrofulous constitution present; that they have not been judiciously fed—starch compounds, with milk diluted with water, or some such food, have been given, instead of good milk and whole meal flour or proper biscuit. Then, it may be that the mother is weak and not fit to nourish the child.

DOMESTIC MEDICINE.—XXXV.

GRAVEL AND STONE.

WHEN anything painful is felt during the action of passing water, it is often attributed to *gravel*. If there is an obvious deposit in the water consisting of little red particles, this is probably the case. And even when there is nothing visibly wrong, there may be some chemical quality of the urine which causes all the irritation, and which tends to the deposit of gravel or stone. For it should be observed that stone depends upon, or is an advanced degree of, gravel. When gravel coheres or sticks together, that is to say, when it gathers around a nucleus, and goes on concreting till it forms a palpable quantity, it is called a stone. A stone may be the size of a pea or a pigeon's egg, or even a hen's egg. It may be formed in the kidney, or in the passage leading from the kidney to the bladder—the ureter; or in the bladder, or even in the urethra—the passage leading from the bladder outwards. Most commonly stones are formed either in the kidney or

in the bladder; and if they are of moderate size, they may occasion great pain by getting into the ureter or into the urethra. Once in the bladder, it may occasion pain and inconvenience in another way—by impinging on the walls of the bladder after the water has been passed, or on the neck of the bladder while the water is being passed, suddenly stopping the flow of the water.

Gravel is easily understood when we consider the natural constitution of the urine. It contains, in a state of health, various salts, compounds of uric acid and phosphoric acid; there are the urates of soda, of potash, and of ammonia; there are also the biphosphate of soda, the phosphates of soda, of potash, of magnesia, and of lime. The chief kinds of gravel are those consisting of urates or of phosphates. Owing to the urine being scanty in quantity, or the salts of it being in excess, or the mucous membrane of the bladder being in an unhealthy state, the saline substances of the urine are not kept in solution; they exist in the urine in the form of more or less gritty particles. We shall notice principally two kinds of deposit, constituting the commoner forms of gravel. Others are too unusual or chemically complicated to be understood by unprofessional persons.

The commonest forms of gravel are the *red* and the *white*. The red and the pink forms are really very common, and occasion often a good deal of pain. They sink to the bottom of the vessel in which the urine stands, and give it a red or a pink stain. Sometimes minute particles of red grit may be seen with the naked eye. Some people are more apt to have this form of gravel than others, especially people of a feverish, or rheumatic, or gouty constitution. In such people a slight cause will suffice to give them a thick condition of the urine, such as a chill or a slight excess of animal food, or of beer, or port wine. The inconvenience caused by this condition of the urine is very different in different people. Some will feel little pain from it, and others may have excruciating pain on passing it. The pain felt also varies in its locality. It may be either in the loins or in the course of the passages by which the urine is discharged, according as the gravel irritates most the kidneys or the bladder and the urethra. If the gravel accumulates into a small stone and passes into the ureter, very great pain may be caused, accompanied with sickness and shiverings, followed by fever. This is what people call a "fit of the gravel." But, short of a definite severe attack of this sort, people suffer much from irritation and pain in connection with gravelly states of the urine.

Causes.—The causes of red gravel may be guessed from what we have said. Excess of animal food, or of ale, porter, or port wine; cold, especially in a rheumatic, or feverish, or gouty constitution—are common causes.

Treatment.—The treatment is implied to a great extent in a statement of the causes. Avoid colds and chills by a proper use of flannel. Avoid excess in the things that favour the occurrence of red deposits in the urine. Take habitual exercise. When the urine is thick and gritty and the passage of it gives pain, it is well to act upon teetotal principles, and to drink freely of barley water, which increases the quantity of urine, and tends to shield the delicate passages by which it flows from the body. Fish and vegetables should be substituted for stronger kinds of food for a day or two. The following prescription, too, may be used:—

Bicarbonate of potash	1 drachm.
Tincture of henbane	1 drachm.
Spirits of nitre	2 drachms.
Peppermint water	8 ounces.

Mix. An eighth part to be taken three or four times a day.

If these measures do not afford relief, then medical advice should be sought for.

White Gravel.—Sometimes there is a deposit of a white colour in the urine, accompanied with more or less pain and discomfort about the loins and bladder, and a feeling of great weakness and nervous exhaustion and irritability. The urine is generally alkaline, and sometimes ropy. This case is one that requires a different treatment from the other. But it is less fit for domestic treatment. The diet here should be generous. Wine or beer should be allowed, and the above medicine is inapplicable. The following prescription is likely to be useful; but it should only be tried in the absence of personal medical advice:—

Dilute phosphoric acid	1 drachm.
Tincture of cinchona	½ ounce.
Water	7½ ounces.

Mix. A sixth part to be taken two or three times a day.

Stone is a surgical disease, entirely unfit for domestic treatment.

COOKERY.—LII.

UNCULTIVATED VEGETABLES.

Mushrooms.—"Know thyself" is an excellent maxim; "Know thy mushrooms" is not a bad one; but after knowing the edible fungi which grow in this and the sister island, many hesitate to put their knowledge in practice by eating those which they know to be eatable. In fact, communities are flocks of sheep at table as well as in the rest of their daily life; what one does, all do; what one will not do, no one else will do. At Rome we follow Roman ways; but though we find we have taken no harm, we refrain from following them away from Rome. We do not pretend to be stronger-minded than our neighbours. In the Pyrenees we freely partake of the famous *Ceps* (*Boletus edulis*), because our fellow-guests scramble for it. There can be no danger in swallowing what you see swallowed by every individual at a *table-d'hôte*. Nevertheless, although this Boletus grows in such abundance in the woods near our house that we can play football with it in our walks, we fastidiously leave it "to waste its sweetness on the desert air." This is a truth, and we cannot deny it. This Boletus is mostly stewed, and served in thick rich gravy in scallop-shells. Though good, we think it inferior to the common mushroom. Fried in butter, it is nothing famous—nor are mushrooms, so ill-treated. Those inclined to make an experiment should take care to gather it before it gets too forward.

The same neglect attends the Chanterelle (*Cantharellus cibarius*), a pretty yellow fungus whose very name tells us what to do with it. Dr. Badham, in "The Esculent Fungues of England," says that the merits—nay, the very existence of such a fungus at home—is confined to the Freemasons, who keep the secret. Having collected a quantity at Tunbridge Wells, and given them to the cook at the Calverley Hotel to dress, he learnt from the waiter that they were not novelties to him; in fact, he had been in the habit of dressing them for years, on state occasions, at the Freemasons' Tavern. They were generally fetched from the neighbourhood of Chelmsford, and were always well paid for.

The chanterelle is a fungus which once seen (or a good drawing of it) can never be mistaken for any other. The common people in Italy dry, or pickle, or keep it in oil for winter use. Perhaps the best ways of dressing chanterelles are to mince and stew them by themselves, or to combine them with meat and other fungi. They require long and gentle stewing to make them tender; but the soaking them in milk over night shortens the time required for cooking.

There are two puff-balls good to eat—the smaller and the larger (*Lycoperdon bovista*), and on that account the better. "No fungus," Dr. Badham says, "requires to be eaten so soon after gathering as this. A few hours will destroy the compactness of the flesh, and change its

colour from delicate white to dirty yellow." Vittadini recommends, wherever this fungus grows conveniently for the purpose, that it should not be taken all at once, but be eaten, as the Abyssinians eat their steaks, in slices cut off from the living plant, care being taken not to break up its attachment with the earth. In this way, he says, you may have a fine fry every day for a week. When perfectly fresh and properly prepared, it yields to no other in digestibility. It may be dressed in many ways, but the best method is to cut it into slices and fry these in egg and breadcrumbs. So prepared, it has the flavour of a rich, light omelette.

No nation consumes so few kinds of mushrooms as the English, who confine themselves, almost universally, to two species, or varieties (*Agaricus campestris* and *Agaricus pratensis*)—excepting, indeed, certain districts in France whose inhabitants obstinately refuse to touch *any*. In such localities we have had difficulty in getting the common mushroom, gathered by ourselves, cooked and served; they seemed to think that the very stewpans would be poisoned by them.

We can here give receipts only for the kinds universally accepted by our population; but even those are not employed to half the extent they might be. And the same argument with which Dr. Clarke advocates the introduction of ferns as food, applies, with still greater force, to the more extended use of mushrooms. On occasions when meat runs short, or is forbidden, they render invaluable service. The Scriptures say of the slothful man that he "roasteth not what he took in hunting." The same reproach may be addressed to those who neglect or despise the gifts which Providence has placed at their disposal. Mushrooms need be left on the ground to rot, only by those who do not know good fungi from bad. In this case, as in many others, ignorance is the cause of scarcity, knowledge of abundance. A plentiful crop of good mushrooms may be made a real boon to a locality. Thus, in August, 1868, the neighbourhood of Whitland, Carmarthenshire, usually so quiet, presented a scene of extreme bustle and activity. In most summers, mushrooms abound in the fields around it, and their sale in the neighbouring towns helps considerably to increase the means of living of several of the peasantry; but the quantity that appeared during that month, after the commencement of the rains, was infinitely greater than was ever known before. Men, women, and children, with baskets, barrows, and carts, daily sallied forth to gather them. It looked as if a great fair were held, in which not a few realised a round sum of money. The village shopkeepers gave 3d. and 4d. for every four pounds' weight of mushrooms, and sent them off by rail to London and other large towns in boxes and hampers. One little boy earned from 2s. 6d. to 3s. 6d. a day; others, more advanced in years, from 10s. to 15s. a day. A poor widow, with a large family, gained in the aggregate, through the exertions of herself and children—by making catchup as well as selling raw mushrooms—about £30! This unusually bountiful supply, therefore, filled the heart of many a needy resident with joy.

We shall further treat of this subject in a forthcoming article on "Edible Fungi."

LEGUMINOUS VEGETABLES.

Pulse are of great antiquity as kitchen vegetables. Under cultivation, the pea has varied more than the broad bean, though the French bean has made up for the latter's stability. The earliest peas of the Prince Albert, Early Charlton, and Ringleader class, are not the best, though their novelty causes them to be highly valued; mid-season peas—as the Auvergne and the Scimetar—are, to our taste, better; the latest, the Marrowfats, are the best, those of moderate height, as Veitch's Perfection, coming in first, to be succeeded by those that grow from six to eight feet high, as Knight's Tall Marrow, Oxford Tom, and others, which differ more by name than by nature.

In another race of peas, not only the pea, but the peascod itself, is eatable, either boiled, as we cook kidney beans, or, better, stewed in butter or gravy. This is known as the Sugar Pea. When true, and really quite devoid of skin and string, you have only to cut, or, better, to break with your fingers, the peascods, with the peas in them, across, into two or three pieces, and then cook them until they are tender. Sugar peas are more frequently met with on the Continent—in Germany especially—than in England. Nevertheless, they deserve patronage for the *quantity* of wholesome food they yield. They are also a pleasant addition to vegetable soups.

Green Peas, English Way.—Fresh-gathered young peas have their shells green, plump, and brittle; long-gathered, the shells turn limp and flaccid; old, they assume a yellowish tinge, as do the peas themselves, in the *white* sorts, and, when chewed, are harder and deficient in sweetness. When green peas are bought shelled, you will wash them as a matter of course, and it may be a good precaution to let them steep awhile, to freshen. When shelled at home, they may still have a rapid rinsing, to remove dust and other small impurities. Throw them into a little more than enough boiling soft water to cover them—*do not* put the lid on the saucepan—and boil with them a sprig of mint. When tender (the time required for which will depend on their age and the quality of the water), drain the water away from them, put them into a hot dish, stir a lump of butter with them till it is melted, and lay the sprig of boiled mint on the top as garnish. Both the mint and the butter may be omitted.

Green Peas, French Way.—Put a lump of butter into a stewpan; on it throw the peas, after washing and draining, with two or three spring onions chopped small, and a sprig or two of parsley. Cover down *close* with the stewpan lid, and stew gently over a moderate fire, as you cook spinach, without any water, shaking the peas about from time to time. They should be *more* cooked than in the English way, and peas a little older may be used, which does not prevent *young* peas, done French way, from being excellent. Simply remove the sprigs of parsley after turning out the peas into the dish.

Green Peas (another French Way) à la Bourgeoise.—Melt a good lump of butter in a stewpan; when it is hot without actually browning, throw in your peas. After giving them a toss or two, dilute with boiling water or broth; add pepper, salt, three small onions, the heart of a lettuce (shred), and a sprig of parsley. When the peas are thoroughly cooked, take the stewpan off the fire, and stir in three egg-yolks, to thicken the sauce. That done, serve all together on a very hot dish.

The English and the French ways of dressing green peas have both their merits and their reasons. Peas are mostly served in France by themselves as a dish, eaten alone with bread, and therefore require to be enriched by stewing with butter, &c.; whereas in England they accompany our most succulent roasts (duck, goose, lamb, mutton, small pork), and are sufficiently sauced by the gravy therefrom, not to mention the stuffings.

Broad Beans, probably eaten by the Israelites in Egypt, may be assumed to be of Eastern origin. The different kinds vary in season rather than in flavour. The Dwarf Fan Bean is a pretty little fancy variety that comes in early. Then there are the Early Mazagan, the Early Longpod, the Green Longpod, and the Windsor Beans. All these are best gathered before the beans are *quite* full-grown. As soon as possible after shelling, throw them into boiling salt and water, with a good bunch of summer savory (*Satureia hortensis*), an annual of easy culture, which is cooked with beans as mint is with peas. When cooked and *well* drained, they may be put into the vegetable-dish with a lump of butter

...red amongst them, or a little good melted butter, containing the chopped cooked savory poured over them. The beans in this case are supposed to be so young that their outer skin, which envelops the cotyledons of the seed, is still tender and eatable. When they are so old that the skin cannot be eaten, after boiling they must be peeled by finger and thumb. The peeled beans, finished off in a stewpan with butter, cream thickened with egg-yolk, or other sauce, will then make an excellent dish, though they take some time and give some trouble.

Beans and Bacon, boiled together, form a favourite country mess. If the bacon is fresh, sweet, and delicate, the beans are all the better for it; but if it is smoked, stale, or in the slightest degree rancid, they are much the worse for such companionship. In doubtful cases, it is best to cook them separately, even at the cost of having to make a little bigger fire. In either case, the accomplished head of the kitchen will put her bacon into cold, and her beans into boiling water.

French or Kidney Beans—decided Orientals—are multitudinous in variety, the differences being generally more apparent in the ripe seeds than in the immature seed-pod which we use as a vegetable. There are dwarf, runner, white, purple, negro, cream-coloured, yellow, speckled, buff, and variously tinted kidney beans. Among the best of the runners are the Haricot de Soissons and the Case-knife, if they are not the same. As with peas, there are kinds of French beans which have no skin or string to their pods, and consequently are *all* eatable. Instead of being worthless, like the stringy sorts, when approaching maturity, they may be made perfectly tender by sufficient boiling, and are all the more nutritious for their approach to ripeness. Several of these deserve to be more known and cultivated in England than they are. The preparation of kidney beans for cooking depends upon their age and sort. Quite young, it suffices to remove the stalk and boil them whole or cut in two; older, you must *string* them, that is, remove the thread that runs along the back and sometimes the front of each pod; then cut them in four, lengthwise and across. The stringless kinds need only be broken in two or three pieces with the fingers. Throw all kidney beans into boiling soft water containing a little salt, and boil them galloping without the lid. The time they take to cook varies with their age and kind. When boiled tender and well drained, you may either serve them quite plain, in which state they go well with roast meat—witness their famous alliance with shoulder of mutton!—or you may stir a lump of butter amongst them, together with a little finely-chopped parsley, which is a favourite mode with the French, who eat them thus, like peas, *as a dish*. The cook may find it convenient to boil, to-day, twice as many kidney beans as are wanted; to serve one-half plain, and heat up the other half, to-morrow, with parsley and butter. These last, cold, make an excellent salad, welcome in hot weather, by the addition of a little oil and vinegar, and other trimmings. Ready-boiled kidney beans are largely employed by French cooks to supply dishes on an emergency. When half-cooked only, they may be treated in exactly the same way as green peas *à la bourgeoise*.

Scarlet Runner Beans, though liked by some, we hold to be coarse and inferior as a vegetable. The plant, especially the variety called the Painted Lady, makes a pretty and welcome climber. The roots, if it be worth while, may be preserved all winter, like dahlias; but remember that they are poisonous.

Dried Haricots.—If you have time, let them steep all night in cold soft water; if not, at least half an hour or so. Set them on the fire to cook in cold, soft water, *without* salt. When they are half-cooked, change the water, replacing the first with tepid soft water. When it boils, add a pinch of salt; when done enough, pour away the water. They are then ready for dressing in any way required.

Plain Boiled Haricots.—Put a lump of butter into a stewpan; when melted, put the cooked haricots to it. Sprinkle them with a *small* quantity of parsley chopped very fine. When thoroughly mixed and well heated through, serve in a hot vegetable-dish. They may be either presented thus, alone, as a meagre dish, or be eaten with meat as a vegetable.

Haricots à la Bretonne (*Breton Fashion*).—Fry a chopped onion in butter; when it begins to brown, add a little flour, and let it take colour; dilute with broth or (if for meagre days) water; season with pepper and salt. Then add the haricots, cooked as above. Let them simmer together twenty minutes, and serve. Haricots, half-cooked and taken out of their first water, form the basis of excellent meagre soup, helped out with a variety of other vegetables, breadcrumb, and butter.

To the above we add, though not a leguminous seed, a receipt for

Andalusian Rice.—This Spanish dish, a taste for which is soon acquired after two or three trials, is recommended as a tonic during the heats of summer, and as a preventative of intestinal indisposition. Warm in a stewpan half a pound of best olive-oil; if disliked or not procurable, fresh butter must be substituted for oil. Then throw in half a pound of picked rice, and a few pieces of veal or poultry flesh trimmed into small dimensions. Add thereto chopped onions, tomatoes, or bottled tomato sauce, a small green capsicum, or in default thereof a dust of cayenne, a pinch of powdered saffron, a little chopped parsley, salt, pepper, and, if permitted, a clove of garlic. Stir these together in the warm oil; leave them to stew in it for ten minutes, then pour in a pint of water, and cover the stewpan with the lid. The rice will soon begin to swell, and in the course of half an hour, or three-quarters at the most, the water will have disappeared. Throw the whole for a minute into a heated strainer, to drain off the oil which has not been absorbed; then pile the rice, which will be bright yellow, on a dish; set it for a moment, to colour its surface, in a brisk oven or under a salamander, and serve, accompanied by lemons, which each guest may squeeze over the rice.

N.B. *Weight* is the only measure of oil on which dependence can be placed, either in buying it or in allotting the quantities in cookery. Oil swells and contracts so considerably under the influence of heat and cold, that there is a notable difference in the measure of capacity filled by a pound of oil in winter and in summer.

Stewed Tomatoes.—The love-apple, or tomato (*Solanum lycopersicon*), a tender annual native of South America, introduced at the close of the sixteenth century, affords an apt transition from vegetables to fruits, because it is never eaten uncooked, but belongs strictly to the kitchen. In the south of Europe it is largely cultivated, and brought to market in bushelfuls, to make soup mixed with any good broth of meat, fish, or vegetables, and to enter into ragoûts. The shortness of our summer renders it with us a less general article of food, and raises it almost to the rank of a luxury. The most usual way of serving it here is as a vegetable stewed. Take as many tomatoes as will fill the bottom of your dish without lying one upon another. Wipe them, remove the stalk and calyx, and cut out decayed or discoloured spots. Put them in a stewpan covered with good, brown, well-seasoned stock. Boil them in it till tender (six or eight minutes) without bursting their skins. Transfer them carefully with a spoon to the dish; reduce the gravy a little by boiling, and then pour it over them.

Pickled Tomatoes.—Take twenty tomatoes, red, but not fully ripe; wipe them quite dry with a soft rag, and put them into your pickle-jar (dry and slightly warmed before the fire) with pickling onions and the same number of

shalots equally distributed amongst them. Into a stewpan put as much vinegar as will cover the pickle and fill the jar, together with half an ounce of sliced ginger, a little less than that quantity of whole pepper slightly crushed, two teaspoonfuls of salt, and five cloves. Scald the vinegar; set it aside to cool, then pour it, together with the spices, over the tomatoes, shalots, and onions. Tie the jar down closely at once. The pickle will be fit for use in about three weeks, at the end of which time, if you want it to keep, scald the vinegar again, and pour it hot over the pickle. The safest way, however, will be to put the tomatoes, &c., into wide-mouthed bottles, to fill with vinegar as full as possible, cork closely, and seal down hermetically with sealing mixture.

FRUITS.

The dried fruits used in cookery, not numerous but exceedingly useful, have been made the subject of curious misnomers. Grocers' *plums* are dried grapes. In the south of Europe many different kinds of grapes are dried, the finer qualities of which we often denote by the term *raisins*. But *raisin* is French for a *fresh* grape; our raisins they call *raisins secs*, or dry grapes, and *grappe* is French for a *bunch* of grapes. Grocers' *currants* are also a small variety of grape dried in the sun, and principally obtained from the Levant. Their name is a corruption of *raisins de Corinth*, or Corinth grapes. Prunes, or dried plums, are correctly named. *Prunum* is Latin for plum fruit; *prunus* (substantive feminine) for the plum-tree, both being derived from *προῦνη*, the word by which Theophrastus mentions it. In South-eastern Europe cherries are dried to serve the same purpose as raisins. Dried figs, the best from the Levant, are seldom cooked here, though we do not know why they should not enter into several sweet puddings. A fig toasted is very nice. Dates also, the fruit of the date-palm from Africa, are almost exclusively reserved for dessert. Palm-trees may be reared in a hot-house from date-stones. Several sweet wines from the South of France, as Frontignan, Lunel, and Rivesaltes, derive their lusciousness from half-dried grapes, which our housewives imitate in raisin wine.

When we are enjoying the possession of any pleasant and useful thing, we are naturally curious to know where it comes from, and other points of its history. Dr. Karl Koch, Professor of Botany in the University of Berlin, has for some time past occupied himself with the origin of our fruit trees; and with that object, during four years, has travelled over the mountains of the Caucasus, Armenia, some parts of Persia, and Asia Minor. Although he cannot always distinctly say that he has there found our fruit-trees perfectly wild, he has still collected abundant materials for researches at home. His conclusion is, that our pears and apples, cherries, most of the plums, also peaches and apricots, are *not* natives of Europe. Only some bad kinds of plums have originated from *Prunus insititia*, the tree which grows wild in the woods of Europe. Our sweet cherry-tree, or bird cherry (*Prunus avium*)—but not the sour or true cherry (*Prunus cerasus*)—was, it is supposed and believed, imported by Pompey.

Our pears probably descend from two or three species. One grows wild in Armenia and Persia, and has long and downy leaves. The other, with roundish and smooth leaves, originates in the eastern provinces of Persia, possibly also in the western regions of China. The latter also, perhaps, is really a species. Our European forms, as *Pyrus salvifolia*, *P. nivalis*, &c., are not true species, but varieties of the others which have run wild. The same is the case with many of our crab-trees.

Plum-trees are, no doubt, wild in the eastern Caucasian mountains, and amongst these, perhaps, the greengage, which is a true species, and well-defined. On the Himalayas, in and about Simla, there is a plum growing almost wild on its own stem (*i.e.*, not grafted or budded), whose branches are covered with short-pointed prickles, like our damson. It goes by the name of greengage there; and although, like all uncultivated fruits, it has not the sweet delicious flavour of our home-grown garden kinds, it still is very passable. It is much smaller than our cultivated sort, much lighter in colour, and has a very transparent appearance. Now, a favourite French variety is known as the *diaphane*, or transparent greengage.

Many of our fruits have travelled about a good deal before they finally settled amongst us. Thus, respecting the one in question, it has been suggested that it may be identical in origin with a green plum, now cultivated in Portugal, and named in that country, *ghiringageira*. As the third *g* in that word should be pronounced soft, it is possible that "greengage" may be a derivative of the Portuguese name. The French name for greengage is "Reine Claude," as if it were introduced by her gracious majesty; at Tours, however, it is known as *abricot vert*, green apricot, and at Rouen as *vert-bonne* (green-good). In Portugal it is likewise known as Rainha Claudia, as well as Ameixas Claudias. As very tolerable sorts are often produced by growing from stones, it may be conceived that, in the course of years, the greengage has branched off into a number of varieties.

Others hold *ghiringageira* to be a mistake, deriving the name from Lord Gage's family. In the early part of the last century, the Lord Gage of that day imported from the garden of the Chartreuses, at Paris, a quantity of fruit-trees, from some of which the labels were lost. One of these was the plum called by the French "Reine Claude," which, when it fruited, the gardener named the greengage, as a compliment to his employer.

Another species of plum grows wild in Syria, and a third (the damson), certainly not near Damascus, but in Tartary. The cherry plum grows abundantly wild in Transcaucasia.

MISCELLANEOUS RECIPES.

The best Way to Cook Preserved Oysters.—Having opened the tin, take out the oysters as carefully as possible, to avoid injuring them, and arrange them on a dish. Then pour the liquor contained in the tin into a saucepan, add an equal quantity of milk, and season with salt and pepper. Place the vessel on the fire, and when hot thicken its contents with butter and flour, and allow it to boil. Then pour it over the oysters, and serve while hot.

Powder for Making Ginger-bread.—Mix in a mortar the following articles, which must have been already ground into fine powder:—Coriander seed, two ounces, and the same quantity of caraway seed and ginger. Nutmeg, half an ounce, fennel seed, and aniseed, of each three-quarters of an ounce, and cloves, half an ounce. This powder must be preserved in a well-closed bottle, ready for use. Two ounces of it are required for one quart of water, four pounds of sugar, and two quarts of flour. To make ginger-bread, the sugar is dissolved in the water, and then mixed into a paste with the other ingredients. If preferred, instead of putting into moulds, the ginger-bread may be made into cakes, and baked on a tin.

Mushroom Sauce for Fowls and Rabbits.—Remove the skins from half a pint of mushrooms by rubbing them with salt. Boil them in half a pint of milk or cream with some salt, mace, and nutmeg. Thicken the sauce with flour and butter, and stir frequently.

Mustard Sauce for Rump Steaks.—Chop up small two onions, and fry them in four ounces of butter until they become brown, but care must be taken that they do not burn. Thicken with some flour, and add a pint of gravy. Season with salt and pepper and a little cayenne, and simmer the sauce for a quarter of an hour, and mix with it a dessert-spoonful of mustard, two spoonfuls of vinegar, and the juice of a lemon. Boil them together for a few minutes, and pour the sauce over the meat.

EDIBLE FUNGI.

PRINCIPAL CHARACTERISTICS AND MODES OF COOKING.

BESIDES the common mushroom of our markets (Fig. 1), we have in this country some 700 sorts of fungi closely and aromatic to the most fœtid and offensive. Most mushroom-like fungi have a nutty and pleasant taste, and are good for food; whilst a few are bitter and disagreeable, or extremely acrid and poisonous. Many grow in rich, grassy pastures, and these are generally

Fig. 1.

Fig. 2.

Fig. 3.

Fig. 5.

Fig. 4.

Fig. 7.

Fig. 6.

resembling it. These different varieties are known to be quite distinct and different from the true mushroom and from each other. The general shape is the same in all; but the colour, odour, taste, and place and season of growth are very varied. We get mushrooms of every known shade of colour, except green, which is rare. We have every variety of odour, from the most delicate esculent; a large number grow in woods and shady places: these are often poisonous; and a certain kind are peculiar to trees and stumps; these are regarded with suspicion. Some species are solitary in habit; others grow in dense masses, or, in the circles known as "fairy-rings," in our meadows, or on downs. Nearly all fungi appear in the autumn, but a few are peculiar to spring.

Perhaps there is no country in the world where fungi are more abundant, and at the same time more neglected, than in Great Britain. In almost every other country of Europe fungi are prized, by rich and poor alike, as wholesome and delicious objects of food. Elsewhere than in England a variety of species are offered for sale in the markets; here, we are limited to one, and that by no means the best. Regarded as an article of diet, fungi possess all the best qualities of meat; and so substantial and nutritious are they, that persons have been known to subsist for many weeks mainly on fungi, eating with them a little bread, and drinking water only.

The great question arises, How are we to know one from the other—the esculent from the poisonous? In all departments of the vegetable kingdom we meet with the same difficulty, and it is essential that persons should learn to distinguish the poisonous from the edible. With proper attention, no person need run any hazard in eating some thirty or forty species of fungi, as their characters are so well marked; and, as rules of the first importance, we may say that all fungi intended for the table should be perfectly fresh and sound, should be properly cooked, eaten in moderation, and with sufficient bread.

In distinguishing one species from another, botanists have recourse to the colour of the gills, or spores, taken in connection with certain structural peculiarities, which in themselves are very simple, when once comprehended. The spores are analogous with seeds, and are produced on the gills, from which they fall in impalpable powder. To secure these spores, remove the stem of the mushroom, and lay the top, gills lowermost, on a sheet of paper; the spores will then be quickly deposited upon it as coloured dust. Poisonous and edible species are spread over the whole family, and both sorts have such various characteristics, that it is impossible to give any *general* distinguishing mark for the detection of either the esculent or dangerous species. In a matter of such importance, it appears strange, but it is perfectly true, that no trustworthy rule can be laid down on the subject, except this, that the would-be mushroom-gatherer should take the advice of some person who has been taught by actual experience.

St. George's Mushroom (Fig. 2).—We consider this to be one of the greatest delicacies of the vegetable kingdom, and it is hardly possible to make a mistake in gathering it. It is common in England, and grows in pastures *in the spring*, generally in large fairy-rings, and may be sought for about St. George's Day, in the showery month of April. The whole plant is the colour of a cracknel biscuit. It is in every part very thick and solid, as large as a good-sized mushroom, and often much cracked. It exhales a powerful but most delicious fragrance. Dr. Badham, referring to this species (under the name of *Agaricus prunulus*), says: "It is justly considered over almost the whole continent of Europe as the *ne plus ultra* of culinary *friandise*." At Rome, so highly is this species prized that it sells for some 12s. per pound.

The receipt given by Dr. Bull, of Hereford, for cooking this species is perhaps the best, and is as follows:—"Place some fresh-made toast—nicely divided—on a dish, with the agarics upon it; pepper, salt, and put a small piece of butter on each; then pour on each one a teaspoonful of milk or cream, and add a single clove to the whole dish. Place a bell glass (or inverted basin) over the whole, bake it twenty minutes, and serve up without removing the glass until it comes to the table, so as to preserve the heat and the aroma, which, on lifting up the cover, will be diffused through the room." It may be cut in pieces and simply broiled, fried, or stewed, with butter, salt, and pepper, with or without the accompaniment of meat. It is readily dried and may be so kept in the kitchen, threaded on strings ready to impart its delicious flavour to soups, gravies, &c., during the winter months. Specimens, so dried, may be seen by the visitor to the Food Department of the South Kensington Museum. Its correct botanical name is *Agaricus gambosus*.

Parasol Mushroom (Fig. 7).—This is the *Agaricus procerus* of botanists, and is readily recognised by the following characters:—The stem is from 8 to 12 inches high, with a thick, spongy ring, and has a top broken up into scales: it has a tall, rather thin and somewhat bulbous stem, furnished with a little collar near the top, and marked after the fashion of a snake. The stem readily separates from the top and leaves a hollow socket at the point of articulation; and the gills are white and never reach the stem. It is very common and grows solitarily or in small groups in pastures and by roadsides in the autumn. There is very little fear of mistaking any other fungus for this, and should a mistake be made there is little danger to be apprehended, as its allies are nearly equally good for food. It is greatly esteemed on the Continent. The flavour of this mushroom is delicate and delicious to a degree. Mrs. Hussey terms it "the king of mushrooms;" and the majority of unprejudiced persons who have once tasted it, proclaim it to be better than *the* mushroom itself.

Remove the scales and stalks, and broil lightly over a clear fire on both sides for a few minutes; arrange on a dish over freshly made toast, sprinkle with pepper and salt, and put a small piece of butter on each; set before a brisk fire to melt the butter, and serve up quickly. Or, remove the scales and stalks and stew for twenty minutes in milk and water, which will be improved with a little good gravy; then season with pepper and salt. Thicken with a spoonful of flour, a little cream, or the yolk of an egg. Boil for a few minutes and serve up quickly in a hot well-covered dish.

Maned Mushroom.—Under this name is generally known the *Coprinus comatus* of botanists. This mushroom attains a height of from 6 to 8 inches; the upper portion is cylindrical, white, and fleecy; the stem is white, smooth, and hollow, and at first furnished with a little collar; and the gills which are at first white, ultimately become black and then deliquesce. It is a very common fungus in late summer and autumn in all open grassy and waste places; it is also common in gardens and by roadsides, and is abundant in all the London parks. It should be gathered for the table when young, and before the gills have become black; it is then one of the richest and most delicious of all agarics. Broil and serve on toast, or fry in the ordinary way, with butter, pepper, and salt.

Champignon (Fig. 3).—"This," says the Rev. M. J. Berkeley, "is the very best of all our fungi." Its flavour is extremely rich and delicious, and there is little fear of mistaking any other agaric for it. It appears in the autumn, and is generally abundant in short pastures, on lawns and downs, and by roadsides in most parts of the country. It usually grows in rings or parts of rings, hence its name of Fairy-ring Champignon (*Marasmius oreades*). It is small in size, pale buff in colour, and tough; it has a smooth, rather fleshy top, thin and solid stem, without hairs or down at the base, and gills comparatively wide apart. Somewhat similar species are found in woods, or with hairy stems and crowded gills—these are best avoided. The champignon is, however, well known to most Londoners, as it is so common in the parks. Like the St. George's mushroom, it is readily dried, and may be kept for winter use. Simply fried with butter, pepper and salt, it makes one of the most exquisite and delicious dishes, or cut in pieces, it makes a rich and savoury addition to a stew.

Hedgehog Mushrooms (Fig. 4).—There is no danger of mistaking *Hydnum repandum* when attention has been paid to the awl-shaped spines beneath the upper

surface, and which take the place of the gills in the ordinary mushroom. The whole plant is fleshy, and generally irregular and twisted, pale buff in colour, and a little acrid when raw. It grows in woods and hedgesides, sometimes solitarily, but more often in dense irregular rings and masses. It is sold in the markets, and extensively consumed in every country of Europe except England. It is a firm and delicious fungus, with a flavour somewhat resembling oysters. To cook perfectly, the plants should be cut up and steeped for five minutes in boiling water; then dry well, and broil, or fry with butter, pepper, and salt. To stew—cut the mushrooms in pieces, and steep in hot water for twenty minutes; then place in a pan with butter, pepper, salt, and parsley; add beef or other gravy, and simmer for an hour.

Edible Boletus (Fig. 5).—In *Boletus edulis*, minute tubes take the place of the gills of the agaric, and the spines of the hydnum, giving the under-surface a spiny appearance. The boletus tribe is very common in our woods, and the edible boletus may be known from its congeners, by its uniformly pure white flesh when broken; and its pale brown top, and tubes, which are at first white, then yellow, and ultimately greenish; and also by its pale brown stem, with elegant white network in slight relief round the upper part. Like the last, it is highly esteemed and largely used in various parts of Europe. It is very common with us, appearing in abundance in our woods in the autumn all over the country. The flesh is extremely tender, nutty and delicious, and should be fried with pepper, salt, and butter, after the stem and tubes have been removed; its undisputed esculent qualities are of a high order, and have been appreciated from antiquity.

Besides the edible fungi of the mushroom, hydnum, and boletus type, we have the large and delicious puff-ball, so common in many pastures; the dainty, and by no means uncommon morel of the spring (Fig. 6), well-known and much used by housewives in the north; and the subterranean truffle, with its rich aroma, noted for the exquisitely rich and delicious flavour it imparts to Strasbourg pie; and to the stuffing of turkeys as prepared in Paris and elsewhere on the Continent.

VENTILATION.—II.

Source of Air.—This fact cannot be too particularly examined. Many buildings are supplied with air from a low level, where the ground is frequently in a neglected condition, and exposed continually to various kinds of impurity at night, in clear weather especially, when the cold produced by radiation from the earth is great, and more or less at all times. Cold air is frequently supplied from the surface of the street, which may be loaded with offensive odours, and these become more dangerous when subjected to the action of heat in a warming apparatus. By taking air from the highest attainable point, avoiding, of course, the vicinity of chimneys, a purer atmosphere is secured, and it may be conducted downwards to any depth by a flue. When there is a large public building and a system of perfect ventilation required, as in the case of a lunatic asylum or a large school, and the air near the building is not altogether, from local causes, what is required, lofty air towers should be constructed, by which means a purer atmosphere may be conveyed into the wards or schoolrooms.

In large manufacturing towns where there are many local impurities, and especially when fog and frost appear at the same time, air-filters can be used, which will have the same effect of cleansing the air as common filters have in purifying water.

Air entering by doors, windows, or other apertures, and rushing in a well-defined but partial stream, so as to produce local currents, may be offensive, whereas, were it to enter in smaller streams by rushing in through a porous texture with as extensive a surface as possible, it may proceed so gently that its current is not to be perceived. Air should always be admitted in this manner, or at such a distance from those upon whom it is to act that its impulse may be greatly moderated before it reaches them. Whenever a proper supply of air is admitted, this equalisation is essential, more particularly in crowded apartments; and the greater the degree to which it is carried, the more healthy and agreeable is the result. Nothing is more common than to see apartments ventilated effectually, so far as may be necessary for the removal of foul air, but with a movement that brings with it a series of chilling draughts; therefore, means should always be taken to warm the air so introduced, whilst the equalisation of it to which we have above referred should be a matter of no less importance. In rooms where invalids are confined, this subject becomes a matter of the highest moment, especially if they should be affected with any disease of the lungs or chest. To very many constitutions, unequal currents of air are as hurtful as an oppressive atmosphere.

When force is employed to promote or ensure ventilation, there are three varieties. Each of these kinds has a technical term—*plenum, vacuum, and compound ventilation.**

Plenum Ventilation is secured in all cases where air is forced into an apartment by a fanner, a screw, or a pump. The air within, in such cases, is slightly denser than the air without, and tends to leak outwards at all crevices of doors and windows. In some cases of disease, particularly asthma, air of great density is sometimes prepared by condensation, with powerful machinery in special apartments, where it affords great relief to the suffering patient.

Vacuum Ventilation.—In this case a shaft or large chimney, or any mechanical power is made to act as a pump, and draw out vitiated air. The air within the ventilated building has then less pressure than the external atmosphere, which tends to leak inwards at all crevices.

Compound Ventilation.—In this case both *plenum* and *vacuum* ventilation may be said to be in operation, the vitiated air being extracted with as much power as that by which the fresh air is forced in. This is the most perfect form of ventilation in crowded assemblies, and prevents draughts at doors, either inwards or outwards, when in perfect operation.

The following five simple methods will supply the great desiderata in ventilation and warming; they are laid down by Dr. Arnott, and have been put to the test with the very best results:—

1. A method of increasing very much the force called chimney draught, and of securing thereby not only the desired purposes in regard to combustion, but also a greatly improved ventilation of rooms.

2. A ventilating air-pump, of simple and cheap construction, by which, at a trifling cost of hand labour or other force, pure air in any desired quantity may be supplied to large enclosed spaces, as public buildings, ships, &c., with the same certainty and regularity as coal gas is supplied from ordinary gasworks to private houses.

3. A method by which, in cold climates or seasons, hot foul air of any sort, while being discharged or pumped away from any enclosed space, is made to give up a pure warmth to the fresh air entering in its stead, nearly the whole excess of its temperature; and then, by one operation, are accomplished both the objects of warming and ventilating.

4. The causing a fire in an enclosed stove, by means of a self-regulating apparatus, to burn with such uniformity

* "Encyclopædia Britannica."

that the heat obtainable from the fuel consumed is given out as uniformly as the light obtainable from wax or oil is given out by a candle or lamp, the enclosed fire being further made to burn without interruption through nights and days for any length of time, with scarcely more superintendence than is required for a lamp.

5. A new arrangement of the open fireplace, by which a fire of common coal can be rendered always smokeless, and, while warming a room better than the ordinary fire, is effecting a saving of from a third to a half of the fuel, and is producing complete ventilation.

There is another remarkable effect that ventilation and access of fresh air have upon the human body, and that is with respect to the appetite. The effects of this will be shown by the two following anecdotes:—

In a weaving-mill near Manchester, where the ventilation was bad, the proprietor caused a fan to be mounted. The consequence soon became apparent in a curious manner. The operatives, little remarkable for olfactory refinement, instead of thanking their employer for his attention to their comfort and health, made a formal complaint that the ventilator had increased their appetites, and therefore entitled them to a corresponding increase of wages. By stopping the fan a part of the day, the ventilation and voracity of the establishment were brought to a medium standard, and the complaints ceased. The operatives' wages would but just support them; any additional demand by their stomachs could only be answered by draughts upon their backs, which were by no means in a condition to answer them.

In Edinburgh, a club was provided with a dinner in a well-ventilated apartment, the air being perfumed as it entered, imitating in succession the fragrance of the lavender and the orange-flower. During the dinner the members enjoyed themselves as usual, but were not a little surprised at the announcement of the provider that they had drunk three times as much wine as he had usually provided. Elderly gentlemen, of sober, quiet habits, who usually confined themselves to a couple of glasses, were not satisfied with less than half a bottle; others, who took half a bottle, now extended their potations to a bottle and a half. In fact, the hotel-keeper's supply was drunk dry. That gentlemen who indulged in this manner were not aware of it at the time is not wonderful; but that they felt no unpleasant sensations the following morning—which they did not—is certainly curious.

The following remarks, which Dr. Wyman has given in more words, illustrate the effects which two different kinds of wind have upon the human frame. Now, the effects of these different kinds of air—on people out-of-doors, of course—are just the same as the effects produced by air of the same temperature conveyed into an apartment by a valve; and if a knowledge of these effects is applied to a sick chamber or hospital, much good may arise. The two winds which are taken as examples are the Sirocco and the Harmattan.

The Sirocco is invariably charged with moisture, and its effects upon the animal economy will illustrate—but in an exaggerated degree—the influence of damp, warm weather. When it blows with any strength, the difference between a moist-bulb thermometer and a dry one very seldom exceeds 4° or 5°; a temperature of 86° often has a dew-point of 80°. The higher its temperature, the more distressing its effects, owing to the little evaporation it produces. This last is connected with its dampness, the principal cause of all its peculiarities—of the oppressive heat, of the perspiration in which the body is bathed, of its relaxing and debilitating effects on the body, and its lowering and dispiriting effects on the mind.

The Harmattan, on the contrary, which blows from the scorching sands of Africa, is so extremely dry, that, when it lasts some time, the branches of the orange and citron-trees become dried up; the covers of books warp as if they had been before a large fire; panels of doors, window-shutters, and furniture, crack and break. The effects of this wind upon the human body are not less remarkable; the eyes, lips, and palate, become dry and painful. From these facts the Harmattan might be considered unhealthy; whereas quite the contrary is observed. Its first breath cures intermittent fevers. Patients recover their strength; remittent and epidemic fevers also disappear, as if by enchantment. Infection, even of small-pox, cannot be communicated. This disease appeared in a slave-ship, and the owner determined to inoculate those who had not taken it. All who were inoculated before the wind blew, took the disease; but of seventy who were inoculated on the second day after it commenced, not one of them had the least eruption, although they went through the disorder after the wind ceased.

All buildings for the reception of people in a state of disease require more than ordinary care to keep them pure and wholesome, because disease brings so many additional circumstances, all tending to vitiate the atmosphere. The breath is charged with noxious effluvia, perspiration is more abundant and more contaminating; a greater number of persons in the case of a hospital are crowded together, and are kept in the same place night and day; the effluvia from the beds, besides various causes of impurity from particular diseases, all tend to deteriorate the air; whilst if in any place pure air be essential, it surely must be in that which is appropriated especially to the restoration of health. Hence the change of air should be more rapid than in ordinary dwelling rooms.

In warm weather all circumstances tending to vitiate the atmosphere are increased manyfold, so that the free ventilation of a sick chamber or a hospital is still more necessary in summer than in winter. We have before mentioned that vapour, noxious gases, and effluvia, being lighter than the common air, should be drawn from the top of the room by means of ventilating tubes. These tubes should be uniform in diameter, as every enlargement produces eddies and interrupts the discharge of the air. Each tube should be independent; for if currents be let into the same tube from different apertures, they will cross each other and interrupt the flow of air.

The best form for the mouth of the tube, with its register, is a circular aperture, with a balanced circular plate to close it. The plate should be larger than the aperture, in order that the air may be drawn into a horizontal current, for the purpose of taking away the air next to the ceiling. If the tube were left without a plate the air immediately underneath would press forward up the tube, and very little of the worst air which collects at the ceiling would escape. A flat ceiling is bad for ventilation, and a room intended for this purpose should be dome-shaped, or in the form of a truncated pyramid.

We must now consider how the fresh air should be obtained.

In summer, fresh air should be obtained, if possible, from the shaded side of the building; to effect this there should be a number of apertures covered with some porous texture (so that, as we have before noticed, the air may have no sensible current), extending at intervals over a considerable space. When the windows happen to be at the shaded sides, the ventilation will be easily managed, by letting in the air *at the lower part of them, by no means opening the top*.* In fine, these golden rules may be laid down, which have been approved by a celebrated civil engineer and a great authority on ventilation, that, in whatever manner fresh air is obtained, (1) it should be introduced near the floor; (2) at various places; and (3) dispersed as much as possible to avoid currents.

* Tredgold.

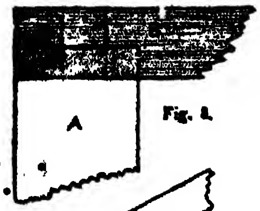


Fig. 8.

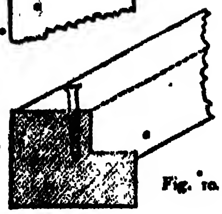


Fig. 10.

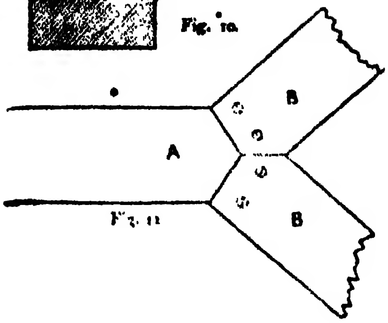


Fig. 11.

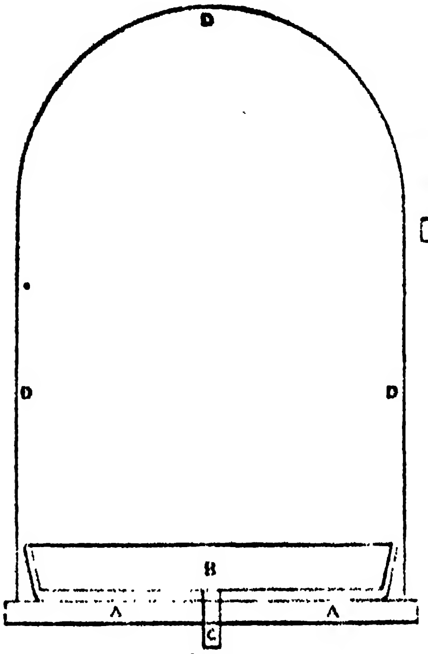


Fig. 1.

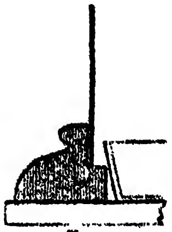


Fig. 3.

Fig. 7.

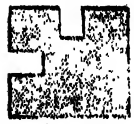


Fig. 6.

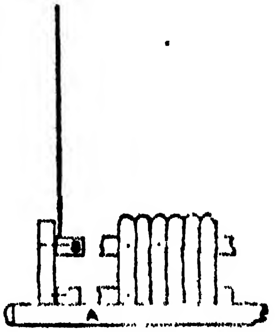


Fig. 2.

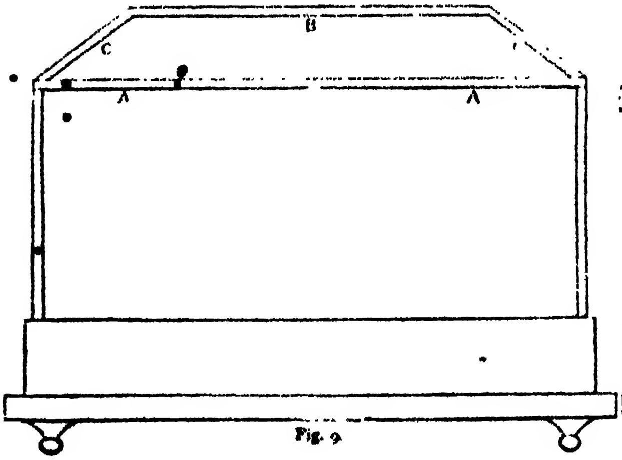


Fig. 9.

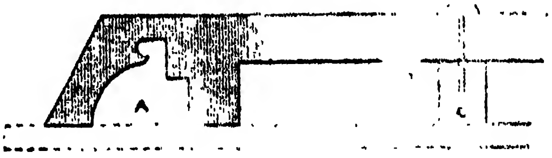


Fig. 4.

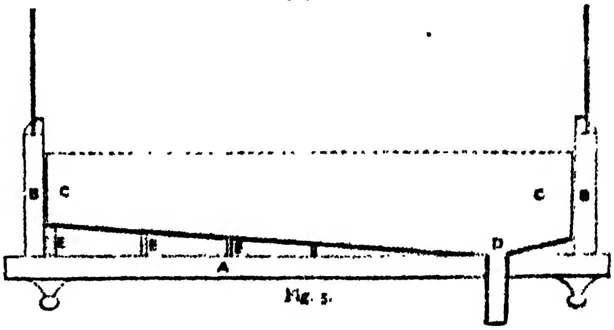


Fig. 5.

THE HOUSEHOLD MECHANIC.—XXXVII.

FERN CASES AND WINDOW GARDENS—HOW TO MAKE AND HOW TO USE THEM.

WITHIN the last few years the exquisitely beautiful and graceful plants known as ferns have become quite household favourites; so much so, in fact, that a drawing-room would now be scarcely considered completely furnished without its one or more cases, each containing specimens of the tribe. This is not at all surprising, as, besides the great beauty of the plants and the facility with which they may be applied to household decoration, they are very easily grown, and require but little attention when once the cases are got into good order. Besides this, however, there is the interest attached to the careful study of the growing plants, which would alone repay the little expenditure of time and trouble involved in their cultivation.

In this paper we intend to describe the construction of fern cases only, and we shall not enter upon the subject of the cultivation of the plants, except so far as may be required in order to explain the forms of the cases in which they are grown.

There are three essential conditions necessary, in order that the culture of fern plants may be successful; namely, abundance of water, shade, and shelter. It is true that some varieties will frequently flourish independently of some of these conditions, but when judiciously

combined, they will admit of the successful cultivation of the whole species. One of the most important considerations is the supply of water. The roots of the plant should always be well supplied with this, and it should on no account be allowed to remain stagnant. It is, therefore, necessary to provide for the thorough drainage of the fern case; and in the designs which we shall offer in these papers it will be seen that this has been carefully kept in view.

It is a mistake to suppose that a fern case need be of necessity either very elaborate or very expensive. An earthenware dish, of the commonest description, and about four inches in depth, covered with a shade of glass, will constitute a case in which plants of rare beauty may be grown; while, although such an arrangement in its rough form is not presentable in the drawing-room, it will suffice for the rearing of plants which are afterwards to be transplanted to more elaborate and elegant cases in the house.

Fig. 1 shows the arrangement of one of these cases. A A is the base board of wood upon which the tray and shade may stand; B is the earthenware tray, or dish, holding the earth in which the plants are grown, and which is perforated to allow of the insertion of the pipe, C, and insure perfect drainage; D D D is the glass shade, which should be large enough to enclose the tray entirely. This completes the fern case for all practical purposes, but of course the rough tray and base board must be disguised and covered if this arrangement is to be introduced into the house. This object may be effected in various ways; if a rustic effect be desired, it may be produced by means of split branches of trees, in the manner shown in Fig. 2. Two rings of wood should be cut out, and one of them secured to the base board, A; the second one, B, should then be placed a little lower than the top of the earthen tray. The branches should then be neatly screwed with fine screws to both the rings, as shown in the figure, leaving the ends sufficiently above the upper one to support the shade and keep it in its place. The shade should rest upon the upper ring.

A second plan, which is very effective, consists in forming a moulding round the base of the shade (as shown in Fig. 3). This moulding should be made either of Portland or Roman cement, as may be elected; either material answering the purpose equally well. To "run" this moulding, a mould will be required, like Fig. 4. This mould consists of a piece of board, about three-quarters of an inch in thickness, and should be cut to roughly follow the shape of the moulding. Upon the surface of this should be tacked a piece of zinc cut to the exact shape of the outline of the moulding, as at A. The arm, B, should be left long enough to reach the centre of the circle required. When the base board is cut to the required shape, a block of wood, C, should be temporarily secured in the centre of it; and to this should be screwed the mould, which should be arranged to work freely upon the centre screw. The cement should now be mixed and placed under the mould, which, as it passes round, will scrape off the superfluous cement, and leave the moulding upon the base board. As the work approaches completion, the cement should be mixed very soft, so as to allow of the work being finished with perfect smoothness. It will be readily observed by the amateur mechanic that a circle of any required diameter can be readily produced by these means with the same mould; all that is required being the lengthening of the arm, B.

If a less artificial effect be desired, the inner part only may be formed by means of the mould, taking care to make the ledge which is to support the shade as perfect as possible. The outer portion may then be covered with fragments of stone, in imitation of rockwork, or decorated with shells; in either case fixing the stones or shells by bedding them in soft cement. For small, handy cases, which may be easily removed, nothing can be better than these shades; and if kept in good order, and filled with prettily grouped ferns, they form very elegant ornaments, either for the table or mantelpiece.

For window decoration, however, larger and much more elaborate cases are desirable; and these we will now describe.

Fig. 5 represents the base of a square fern case, very suitable for a window: A is the base board upon which the other parts are framed; B B are the sides of the frame which covers the tray containing the earth; C C is the tray itself, and it will be observed that this is made much deeper at D, where the tube is inserted, than at any other part, in order that the water may flow quite freely out of the case. The tray, C C, may be made of zinc, or galvanised iron, and it should be supported by bearers nailed to the base board, as shown at E E E. Provision should be made for lifting the tray containing the plants entirely out of the case; and for this purpose four rings, soldered on to the top edge of the tray, will be useful. Of course, the tray must be small enough to allow of its passing the top frame of the case. This arrangement will be found to be exceedingly handy when arranging the old plants, or inserting new ones, and should never be omitted, except when the case is of such a size as to admit of one or more of the sides being removed when required. The plan of the bottom, which we have given, is adapted for any fern case; and we will now proceed to describe the manner in which the parts are to be put together.

The frame, B B, should be at least one inch in thickness, and dovetailed together at the angles. It will vary in depth, according to the size of the case; but, as a rule, five inches will be ample. It will be well to screw it to the base board, instead of trusting to nails, as is frequently done. Before putting the frame together, a groove should be made to receive the glass; or, if this be not convenient, slight fillets may be bradded on to the top edge, so as to answer the same purpose. When the frame is screwed into its position upon the base board, mortices must be made at the angles to receive the bars which are to support the glass. The simplest and easiest way of making these mortices will be with a stock and a half inch centre-bit, and they should be at least one and a half inches deep, and bored perfectly upright. The next thing will be to prepare the angle bars, the best material for which will be clean and straight mahogany.

The length of the bars will of course depend upon the required height of the case, due allowance being made for that which is taken off by the tenons at the top and bottom. These bars should be prepared square, about one inch each way, and grooved on two sides, as shown in Fig. 6, to receive the glass. The upper frame, A A (Fig. 9), should now be made, and this must be exactly the same size as the lower one, B B (Fig. 5). The easiest method of putting this together will be by halving one piece into the other, as shown in Fig. 8, in which A is the angle bar, and B the upper frame. Mahogany should be used for this also. When the halving at the angles is completed, the frame should be laid upon the bench, and both parts bored carefully through with a sharp centre-bit, precisely as in the bottom frame, that the tenons upon the upright angle bars may pass through and secure all the parts. Before this is done, however, the top inner edge should be rabbeted, to receive either a flat square of glass, which may form the top of the case, or a frame, if the roof is to be hipped, as shown in the figure. The section of the top frame would therefore be that shown in Fig. 7. If either of the glass sides is to be removable—as we certainly recommend one side should be—the top frame must be grooved along its whole length, and quite through, as shown by the dotted lines in Fig. 7. When the work is prepared thus far, it may be put together. The angle

bars should first be driven into their places in the lower frame, with a little good glue upon each tenon. The glass on those sides which are not removable should now be inserted in the grooves prepared for it, when the top frame may be placed in position, and driven down upon the tenons, which will keep the whole together. We need scarcely observe that this must be done carefully, in order that the glass be not broken. If the top of the case is to be flat, all that is now required to complete the work is to cut a square of glass into the rabbet upon the upper frame. The best plan, however, is to hip the top, as shown in Fig. 9. In this case the roof will require framing together, and a small frame must be made to fit into the rabbet in the top frame of the case. This must be rather slighter than the lower frame, upon which it is to rest, and wood three-quarters of an inch square will be ample. The angles should be halved together, as before described. When this is fitted into its place, the ridge piece, B (Fig. 9), may be prepared. This should be about one inch square, and it will be shorter than the frame beneath it by the length of the slope. The angle bars, C C, should be rabbeted like sash bars, to receive the glass. The best plan of putting this roof together will be to place the frame upon the bench, and brad fillets round it to keep it in its place while the other parts are fitted. The ridge piece, B, should then be temporarily fixed in its right position, while the angle bars are fitted to it. These should be bird's-mouthed over the angles of the frame of the roof, so that the lower edge of the rabbet which supports the glass comes about half-way over, as shown in Fig. 10. These being properly fitted, the ridge piece should be cut at the ends, as shown at A (in Fig. 11), and the bars, B B, cut to fit tightly against them. The whole should now be screwed together with fine brass screws, taking the greatest care to avoid splitting the wood in any part. If the case be a small one, no support will be absolutely required for the glass along the ridge, if it be cut tightly into its place, but it will be safer if a slight fillet be carefully bradded underneath. We should advise that the top of the case be glazed before the frame is removed from the bench, as the glass will keep it square, and impart additional rigidity to it altogether. The glazing will be performed in the usual manner, except that a little redlead should be mixed with the putty, in order to make it set very hard. The ridge may be decorated upon its upper edge with perforated zinc, or wood cut to any pattern, according to the taste of the constructor.

These instructions will enable the household mechanic to construct the two simplest forms of fern cases. In our next paper we will describe those which, while much more difficult of construction, are more artistic and effective in appearance.

DOMESTIC MEDICINE.—XXXVI.

DISEASES OF THE HEART.

PARTLY because the detection of diseases of the heart has been made much easier of late by reason of improvements in medical art, more attention has been directed to them. They command attention also on account of two other circumstances. They are more or less serious; and secondly, they are thought to be frequently the cause of sudden death. On the whole, the tendency of the public is, perhaps, to overrate the importance of diseases of the heart. Not that it would be right to make light of them; but many people do good work for a fair lifetime with hearts that would be considered unsatisfactory by a life assurance office. The fact is, that most of the best work in the world is done by men and women that are not perfectly sound in their physical constitutions. Many of them know they have a weak spot, and save it as much as possible; and it is astonishing what a little consideration for a weak part will do for it, and how the weak part will respond to such care by fair efficiency for common work. So much by way of introduction. A few words will be well spent in describing the

Nature of the Heart and its Action, as on a proper understanding of these depends a proper understanding of the ailments and diseases of it. The heart is a muscle—a hollow muscle. It comes nearer than any other muscle, or any other thing, to perpetual motion, for it will go on for fifty, eighty, or even a hundred years *beating*. But a little reflection will show that the heart is not always working. There is an interval between the beats of the heart called *the pause*, during which the heart *rests*, slowly and gradually fills, until it gets rather full, and then it beats again; or, as doctors say, it contracts. So the heart is not always working. Roughly speaking, half the time of the heart is spent in contracting, and half in *resting passively* till it fills again, so that the heart of a man who has lived to a hundred has had at least fifty years' rest. The moral of this is that every living thing that has to work must have rest. Even our hearts are not always beating. But to return to the structure of the heart. It is made up of a hollow muscle, whose work is to contract on the blood contained in the heart, and send it on through the lungs to be aired, and through the body to supply every part with fresh blood. To insure all the blood being sent forward out of the heart there are valves to prevent it going backward. These valves are thin, smooth, and transparent, and attached by tendinous cords to the walls of the heart. The heart in a healthy, full-grown man weighs fully eleven ounces, and in women about nine ounces. Its weight varies according to the weight of the body. Its form is familiar to most people, and, we repeat, it is made up essentially of muscle, that has to do work like that of other muscles, and requires rest and food.

The diseases of the heart may be either *functional* or *structural*, that is to say, the structure of the heart may be visibly altered, in ways which we shall shortly describe, or its mere action, and the regularity of its beat may be disordered. We shall first say a few words about

The Functional Disorders of the Heart.—The most common and uncomfortable of these is palpitation. In health we are not conscious of the action of our vital organs without attention. But we should advise everybody not to pay that attention. People should not study their vital actions as if they suspected them. They should take their health for granted, unless it is so far wrong as to be distinctly noticeable. When the heart beats sharply, or too quickly, and thumps against the chest, then we say there is palpitation. Now, there are many things which without any disease of the heart will disorder its action, and cause palpitation, such as strong green tea, too much anxious study, and tobacco. For the most part, these things act on the nervous system, and through this system they disorder the heart. Dyspepsia or derangement of the stomach, hysteria, and some rheumatic conditions of the system, will suffice occasionally to set the heart beating irregularly. In gouty people there is often both indigestion and palpitation, which quite disappear when the gout is cured. The mere fact of palpitation is, then, no proof of the existence of disease of the heart. A change of diet, the abandonment of a bad habit, such as that of smoking, or drinking strong tea, or taking heavy suppers, will often suffice to cure the palpitation. If indigestion exist, or any gouty symptoms, or any rheumatic feelings, the wisest course a patient can take is to take himself to a doctor, that these may be removed.

So much for functional diseases of the heart. They are generally not of much consequence, and can be easily controlled by care in one's habits and by simple remedies. We shall next speak of those cases in which changes have happened in the structure of the heart, which are ascertainable by a change in the natural sounds of the heart, and by other indications.

HOUSEHOLD DECORATIVE ART.—XXXIII.

THE ART AND APPLICATION OF ILLUMINATING.

(*Continued from p. 47.*)

Colouring.—The colours employed may broadly be divided into two classes—body and transparent colours. Body colours are those which are solid and opaque, such as vermilion; and transparent colours, such as carmine, can be converted into body colours by the addition of Chinese white or other strong body colour. The advantage of the body colour is that it can be applied with less difficulty than the transparent, and a flatter and purer effect be produced. Washes of transparent colour, on the other hand, though requiring more skill and practice before they can be laid on evenly, are lighter and richer in effect than body colours, and are very frequently absolutely necessary to heighten the effect of the latter.

Fig. 13.—F[illegible]TEENTH CENTURY.

C[illegible]RS.

Ground, within the Initial, *gold*; [illegible]pting the spaces marked P, which are *purple*.
Parts of the Initial shaded with [illegible] with horizontal lines, *blue*.
Hair lines dividing these colours, *white*.
Yellow, shaded with orange, scarlet, and crimson.
Pink, shaded with purple, and lighted with white.
Blue, shaded with black and lighted with [illegible] or white.
Scarlet, shaded with crimson and lighted [illegible]
Green, shaded with black and lighted with [illegible]
Purple, lighted with pink and white.
Stems, yellow shaded with burnt sienna; [illegible] black; outer boundary lines, scarlet.

Before laying on washes of transparent colour, and more especially blues, it will be requisite, if a large surface has to be coloured, that the paper should be first damped with a soft camelhair pencil; and the same thing may often be done to advantage before using body colours—indeed the generality of colours will work more freely if the paper be kept slightly moist. For this purpose, as well as for mixing the colours, distilled water should be used, or rain water, if it can be procured perfectly free from organic matter, and a little gum-water should be provided to mix with colours when they require greater richness.

When any mixed colour has to be used, sufficient for the whole space to be covered should be prepared on the palette at once, as it will afterwards be found impossible to match it with perfect accuracy.

For the sake of convenience of expression, when any colour is mixed with white, it is called a *tint* of that colour; and if, as is possible with many colours, a small quantity of black is added, it will become a *shade* of the original colour. The best white for the former is Chinese white, and for the latter the best black is lampblack.

When taken from the bottle Chinese white will generally be found thick, and unfit for working. If so, it may be thinned with pure water, and then left for some time for the superfluous fluid to evaporate before the pigment is used.

In taking up and laying on body colours it is better to use the point of the pencil alone; and, as is also necessary in laying on washes, the strokes of the pencil should, when the form of the space permits, be all in one direction. No trouble should be spared to render the coating perfectly flat and regular, and, as a rule, all colours, especially body colours, should be quite dry before a wash or another coat is laid over them. In some cases, however, as in that of painting a holly berry, a good effect may be produced by shading while the ground is still damp. In this instance the berry is coloured all over with orange, upon which, before it is dry, a small spot of vermilion is applied near one side, but not touching it. By this, and by the addition of a small speck of white after the previous work is dry, on the point where the light is supposed to fall, a glossy effect may be produced which could not be easily obtained otherwise.

Fig 6.

Fig 11.

Mixing the Tints, Shades, and Compound Colours.—

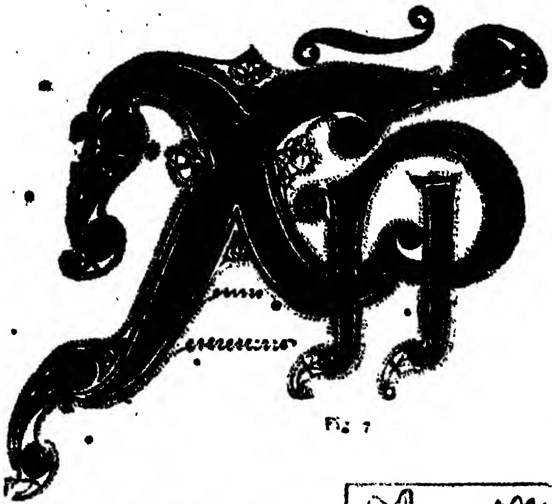


Fig. 7

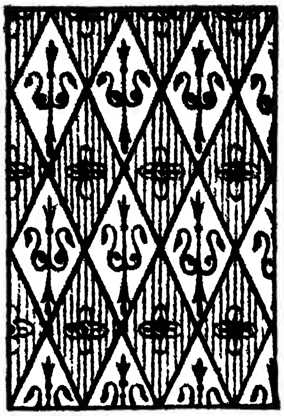


Fig. 3

Fig. 9

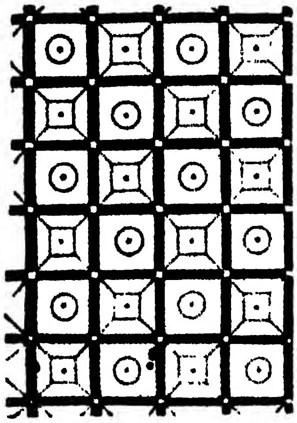


Fig. 4

Fig. 14

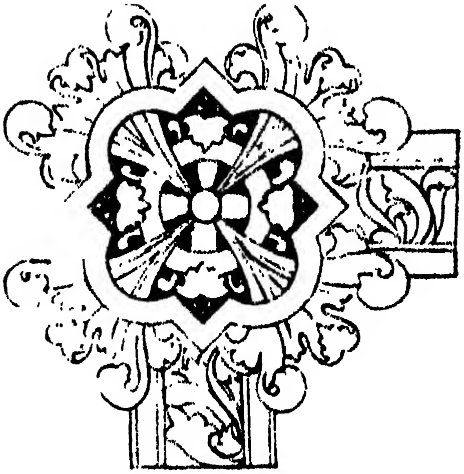


Fig. 10

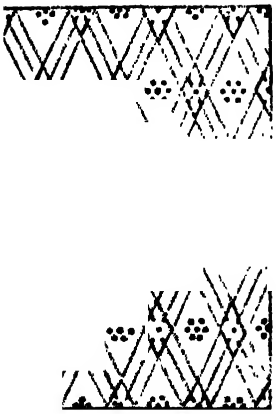


Fig. 2

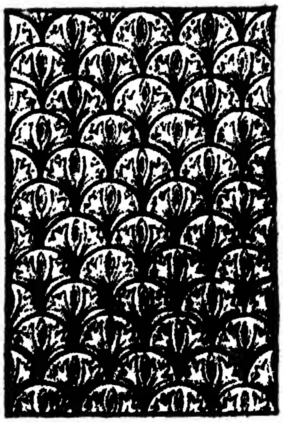


Fig. 5

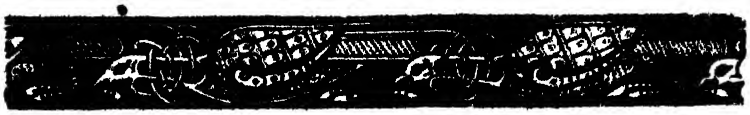


Fig. 8

Since in illumination purity and brilliancy of colour are of the highest value, some attention should be given to a judicious selection of colours proper for mixing, as bad mixtures produce muddy effects.

The following colours mix well:—

Reds: Vermilion may be lightened with cadmium, or Indian yellow, without losing its warmth; by this mixture also, orange may be produced. Vermilion may also be darkened into a rich crimson by the addition of carmine. With lampblack it makes a rich brown shade. Indian red may be lightened with vermilion or darkened with lampblack. Carmine may be heightened to a rich red with vermilion; with Chinese white it forms a variety of rose-tints; with blue a purple, and with lampblack a maroon. Rose madder may be treated in the same way as carmine.

Yellows: Cadmium may be lightened with lemon yellow; with Chinese white it will make a maize, or straw colour, and it may be darkened with vermilion; with blues it will form a variety of greens. Indian and lemon yellow may be lightened with Chinese white, or darkened with cadmium.

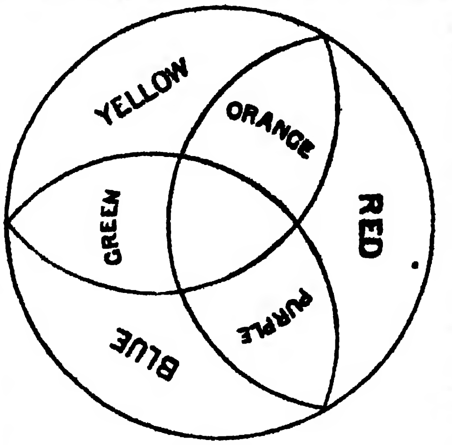


Fig. 1.

Browns: A yellow brown may be made with Indian red and a little cadmium. Vandyke brown and Chinese white will make a stone drab.

Purples: These may be altered to any shade by the admixture of blue or carmine; with Chinese white any tint of them may be formed.

Blues: French ultramarine and cobalt, will form with Chinese white many delicate tints. These colours may be darkened with indigo and with lampblack. Cobalt with orange vermilion makes a neutral tint for shading, with brown madder it makes a greyish lilac, and with carmine a purple.

Greens: Emerald green may be lightened with yellow and deepened with blue; indigo shades this colour well. Moss green may be lightened with yellow, and darkened with French ultramarine. Oxide of chromium with white forms a light opaque green, and a light apple green with emerald green.

Greys: Black and Chinese white make an ordinary grey, and, with the addition of cobalt, a pearly grey. A slate grey may be formed from black and white by the addition of carmine, or Indian red and carmine. Black, white, cobalt, and rose madder make silver grey.

Pinks (opaque) may be made from Chinese white and a little of either of the following colours—carmine, orange vermilion, Indian red, or rose madder.

Chocolate may be formed of Vandyke brown and carmine, or of burnt carmine and orange vermilion.

Russet Red may be made from carmine and Indian red.

Where excessive brilliancy is required, transparent colours may be laid over silver, and white may be intensified in the same manner.

Fig. 11.

Harmony and Contrast of Colour.—Since to obtain a good arrangement of colour in his designs is of high importance to the student, it will be necessary for us to make a few concise remarks on the laws by which colour is regulated. It is only by colours so placed as to produce what are known as harmony, and as contrast, that good results are to be obtained. The effect of harmony on the eye is of a soothing nature, that of contrast of an exciting one. Generally in illumination the latter effect is the one chiefly aimed at.

There are three primary colours—red, blue, and yellow; and three secondary colours, each of which is formed by the mixture of two of the above. Thus orange is formed of red and yellow, green of yellow and blue, and purple of blue and red. This will be better understood by reference to the diagram (Fig. 1). To produce perfect contrast a primary colour must be placed in juxtaposition with what is called its "complementary" colour, that is, the secondary colour formed by the combination of the other two primaries. Thus, to produce perfect brilliancy, red must be contrasted with green, blue with orange, and yellow with purple.

Colours become warmer in tone as they approach orange, and colder as they recede towards purple and blue; and as a rule the warmer tones should be used more sparingly than the colder, and, even when cold, extremely vivid colours should be used with caution. Among the primary colours blue may be used most freely, red next, and lastly yellow. The secondary colours, with the exception of orange, may be used more lavishly than the primary. The tertiary colours, which are formed by a combination of the secondary and primary, are too dull and ineffective for common use, and can only be used for minor portions of the work.

Harmony is produced by placing next to the colour those hues which are most nearly akin to it. Thus with red, orange and crimsons harmonise; with yellow, primrose and orange; blue with its own shades and tints.

Green should rarely be used for its own sake, but rather for that of contrast in heightening the effect of reds and oranges, and sometimes purples. Grey, black, white, and metals will be found to relieve any colour with which they may be placed in contrast. For this reason colours are almost invariably separated in illumination by outlines of black, or, in some styles, with black and a hair-line of white, or green as in the party-coloured letters of the fourteenth century, by a line of white alone.

In the employment of metal the student will do well to follow the old heraldic rule of keeping "colour upon metal, and metal upon colour." No illumination looks

really well without gold, and where the groundwork of initials and other ornaments can be formed by it, it should, so far as the style followed will permit, be employed.

Diapers have been much employed with good effect, especially in the thirteenth and fourteenth centuries, chiefly as groundwork to fill the panelling of initial letters, and as backgrounds for miniatures, figures, &c. Some knowledge of diapers will be useful to the student, and we therefore give several illustrations of them. The simplest, and one of the best, would consist of a gold ground indented with lines, and sometimes with dots (Fig. 2). Others may be made as in Fig. 3, with grounds of buff, with lozenges of purple or blue, lined in black or gold, or as in Fig. 4, with alternate quarries of blue and gold, these being relieved with spots and squares. We give these as examples, but both colours and lines may be varied to any extent to suit the tastes of the illuminator. Most diapers are entirely mechanical in their construction, and are drawn in with the ruler and pen, though some, as for example that given in Fig. 5, are formed by a combination of free-hand and mechanical drawing.

Styles and Modes of Treatment.—Modern illuminations have achieved nothing equal to the mediæval MSS., or anything that can be considered equal to them as models; and the modern art of illumination, like modern Gothic architecture, is entirely governed by mediæval precedents. It will therefore be necessary for us to point out briefly the characteristics of the various periods, and the different methods of treatment adopted, as by this means we shall best enable the student to carry out his own designs with correctness and beauty.

Any description of the Byzantine and earlier schools would be foreign to our present purpose. The first great school which prevailed in these islands flourished chiefly in Ireland, and produced many beautiful works, of which the most remarkable that remains to us is the celebrated "Book of Kells" (sixth century). The principal characteristic of this style was its intricate interlaced ribbon ornament. This must be considered as the foundation of English illumination.

Previous to the year 800 the Anglo-Celtic illuminations were marked by a style chiefly based upon Celtic models. Great intricacy marks the general design. The initials are much filled with interlaced ribbon ornaments, mostly in black and white (see Figs. 6 and 7). Panels within the letters, and also borders, are filled up with elongated forms of lizards, birds, &c. (see Fig. 8), which also appear in the borders of this period, and any imitation of natural flowers and foliage is avoided.

About the time of Charlemagne (early part of ninth century) the MSS. are distinguished by simple and massive letters, the decorative features of which are derived from classical forms, such as the acanthus. This was introduced into England in the time of Alfred the Great, and thus the Franco-Saxon school originated. In this the initial letters are plain gold bands, having panels which are frequently filled with interlacing Celtic ornaments; but this, like the interlacing work used in other parts of the decoration, is of a bolder and more open treatment than in the previous style. Heads and whole animals are sometimes introduced.

The tenth century Anglo-Saxon illumination is peculiar to this country. In initials the interlaced work is still retained (see Fig. 9), but what is chiefly characteristic of the style is found in the borders which surround the text. They consist of massive gold bars with geometrical corners and centre ornaments, entwined with foliage of a graceful, though severe and conventional character (see Fig. 10).

From that time to the twelfth century the style was transitional, and cannot be cited for imitation.

In the twelfth century we find a new style developed, scrollwork of a bold design forms its chief characteristic. Instead of the interlaced ribbonwork of earlier times we have spiral scrolls, springing frequently from the tails of lizard-like animals, and terminating in flowers or leaves. Small portions of the scrolls often turn over and spread at their endings, the reverse side thus shown being of the contrasting or complementary colour to the scroll itself (see Fig. 11). The grounds are now frequently of gold, silver, and rich colour. Initials are the great feature, complete borders being generally avoided. In the small slip borders of the period a peculiar style is to be observed. They show scrollwork, foliage, and animal forms merely outlined and shaded in red. The pen was much used in works of this period.

Late in the thirteenth century the colouring became heavy and indistinct. The initials are small, but have elongated extremities, sometimes extending down the whole side of the page. Miniatures become more common, the heads having backgrounds of gold. The colours employed are for the most part pink, blue, and green, shaded with their deeper tones, and delicately hatched with white lines. In the miniatures red and purple are sometimes used, conventional animal forms appear, and also leaves. This style is shown in Fig. 12.

In the fourteenth century ornament is more lavishly employed on every part. The capital letters are rendered peculiar by consisting of two flat colours fitted into one another, and divided by a white thread line (see Fig. 13). Of these letters the colours generally are red and blue, or gold and blue. Fine line ornaments in colour are drawn with a pen round the capitals and borders. Miniatures appear frequently on grounds of gold and rich diapers. Raised gold backgrounds richly burnished were common in this century, but not afterwards. Leaves showing turnovers, and thus giving scope for contrasting colours, are also frequent. Architectural backgrounds, which had been occasionally used in the previous century, now became prevalent.

In the fifteenth century the art is generally considered to have become debased. It is characterised by imitations of flowers, leaves, and animals in their natural colours, very slightly, if at all, conventionalised, and generally on a gold ground (See Fig. 14). Although to be in accordance with the received canons of the art, we must pronounce this far from being the highest style of illumination, still it may often be practised to advantage, as it gives scope for imitating the forms of Nature which many may be able to do admirably, though they have not the peculiar skill required for conventionalising.

PRINCIPLES OF GOOD TASTE IN HOUSEHOLD FURNITURE & DECORATION.—IV.

FURNITURE.

LET us assume that our walls are covered with papers of tasteful designs, suitable for upright and flat surfaces, and quiet and unattractive both in colour and form; and also that carpets and floor-cloths have been chosen of unobtrusive designs, and which are adapted for horizontal surfaces, and for being trodden upon. And let us suppose, also, that these have not been selected without reference to the uses and positions of the rooms in which they are placed; that, if in a dining-room, for instance, the patterns have more richness and depth of colour; if in a drawing-room or bedroom, more lightness and delicacy of colour and form. And, again, that if the room have a northern aspect, the colours chosen are not too dark and sombre in the dining-room, nor too cold in the drawing-room.

We have now to introduce our furniture, and in doing so to keep in view the colour and character of our background. As we have already pointed out, the wall and carpet should contrast with the furniture and serve to

relieve it; but, in the objects themselves, there should, in each room, be a degree of uniformity in the design. If there is too much diversity, the room will look as if it had been furnished piecemeal, and without due regard to the unity and completeness of the whole. Nothing, for instance, destroys the unity so much as to introduce two or three kinds of wood. But it is not sufficient that the chairs, table, sideboard, sofa, &c., be all of mahogany or walnut, but there should also be uniformity in the character of the forms, and also in the enrichments. Should the table be rectangular (a form most suitable for a dining-room), it would be more in keeping if the leading lines of the chairs, sideboard, &c., be straight; and, whatever the kind or style of enrichment employed on the one, it should be adopted on all. Again, should the drawing-room table be circular or elliptical, or of some other curved outline (which is a more elegant and suitable shape than the rectangular), the backs and legs of the chairs, the sofa or couch, sideboard, &c., would look more in harmony if similarly curved, while the same uniformity should be observed in the style of the enrichments.

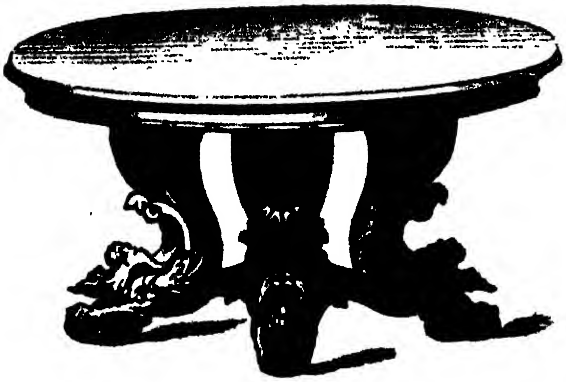


Fig. 1.

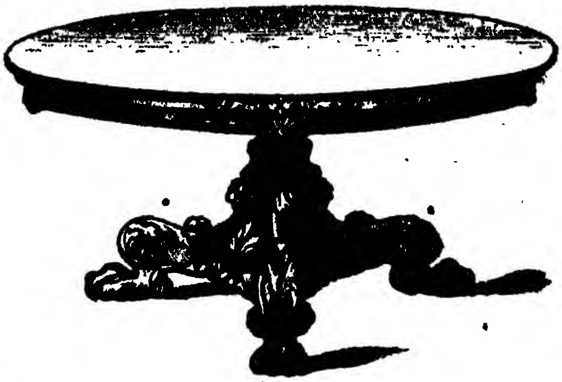


Fig. 2.

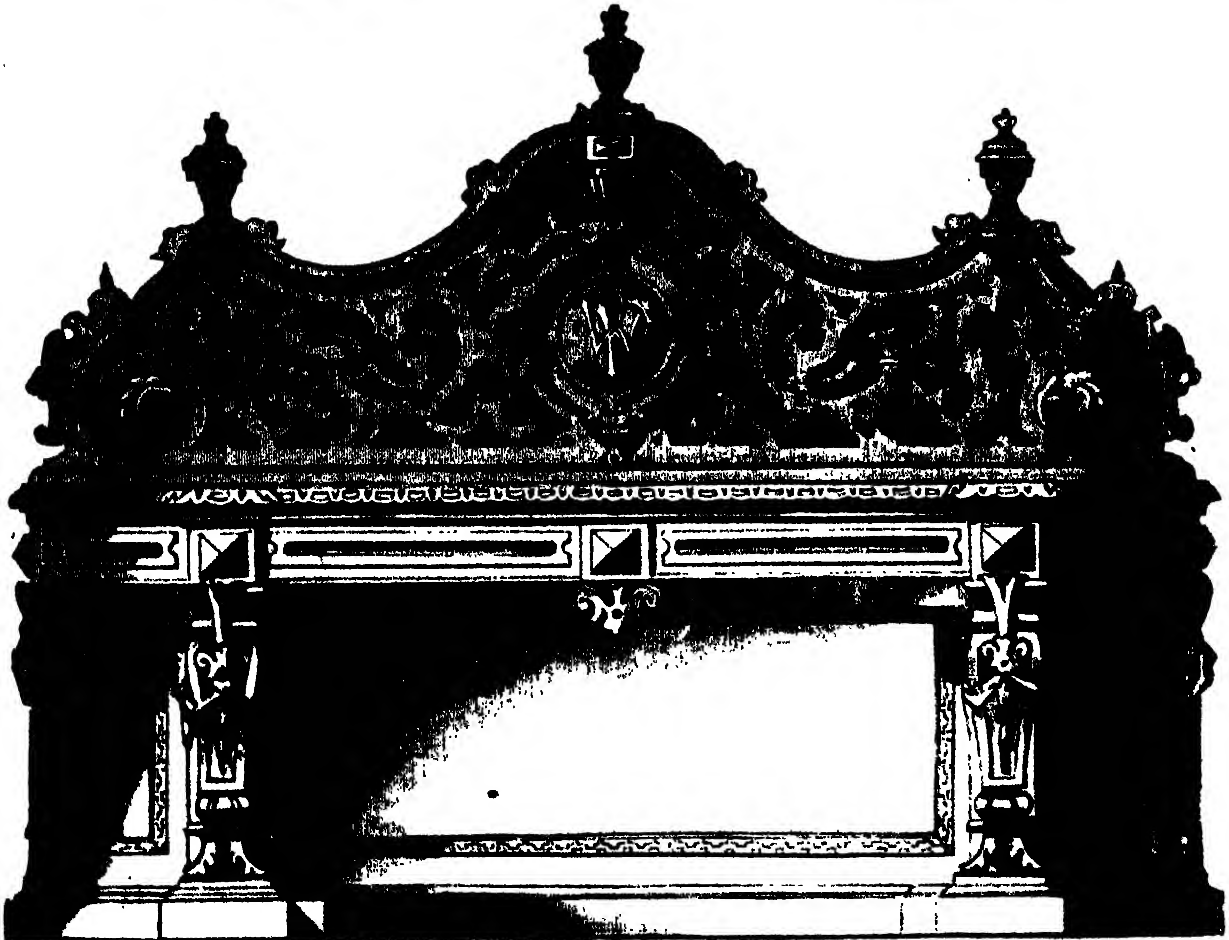


Fig. 4.

To obtain this uniformity of style, the two chief things to be attended to are: firstly, that the enrichments be

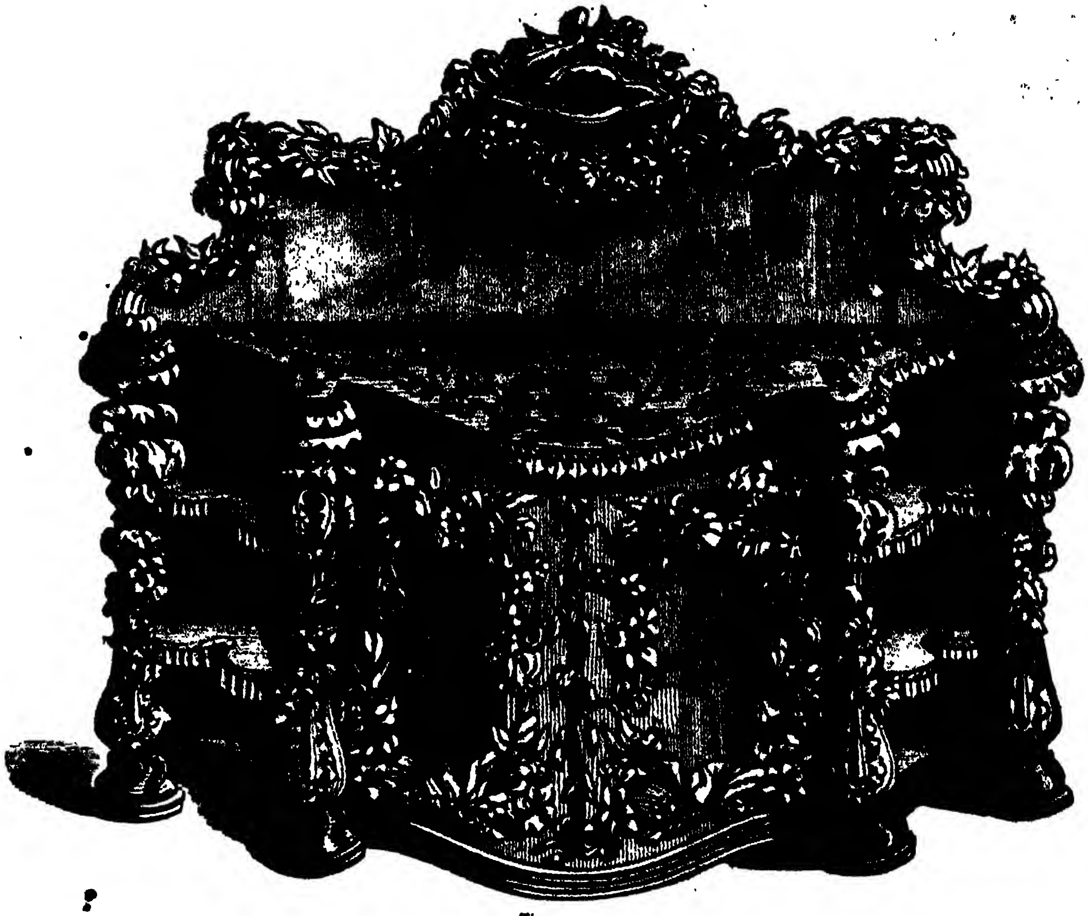


Fig. 5.

equally simple or florid, the sideboard not being elaborately covered with carved work, while the chairs and tables are destitute of ornament; secondly, that the ornament itself be of one style or character.

It has long been a common practice, where most attention has been paid to this uniformity, to adopt some general style, as Greek, or Gothic, or Renaissance; or some particular branch, as Elizabethan or Louis Quatorze; and to have the building and the furniture all designed in the one style; and by adopting this course, since each style of the past has its own peculiar spirit and characteristics, if these are not departed from, uniformity will necessarily follow. But great want of taste is often manifested by the indiscriminate mixture of various styles of ornament between which there is not the least affinity. Perhaps the wall-paper consists of a diaper in the Moresque style, from which natural forms are strictly excluded, while the carpet design is composed of flowers and foliage naturalistically treated; and maybe, the sideboard is covered with Elizabethan strapwork, while the chairs and mirror are of Renaissance designs. Such inconsistencies are by no uncommon, and indicate great want of taste and judgment. But in many cases it is not practicable to have the whole of the furniture and enrichments of one style; nor do we believe, as many do, in the desirability of adhering thus rigidly to some particular style, or period, of art, and of reproducing the characteristic details again and again with literal exactness.

Fig. 3.

Such imitation and repetition have already been overdone, and we much prefer to see uniformity which is not dependent upon the correctness with which ornaments of a past style have been copied, but which arises from some similarity and congruity observable in the general character and treatment of the decoration throughout at least the one apartment, or throughout the whole house.

Let us illustrate our meaning. Suppose, for instance, that our taste inclines us to admire ornament which consists chiefly of natural forms, whether vegetable or animal, like the Gothic artists of the middle or decorated period, who introduced flowers, and foliage, and animals, and the human form, in every conceivable combination. Adopting this *naturalism* as our leading principle, we introduce natural forms through-

out the enrichments. We choose for our wall-paper a pattern of some simple diaper, consisting of a geometric basis filled in with leaves (as Fig. 8, page 41, vol. ii.). For our carpet we choose some such pattern as Fig. 1, page 200, vol. ii., in which flowers and foliage are also arranged on a geometric basis. We not only thus choose to have geometric forms mixed with the natural forms on our floor and wall, because it is well adapted for distributing the ornament over a large surface, but also because these, being the inferior parts of the decoration, should have the lower class of forms; the higher forms —such as imitations of groups of flowers, fruit, animals, and the human figure—being reserved for the more important features. We choose for our table one with animals crouching underneath (as in Fig. 1), or, if less elaborate, say with animals' feet only (as Fig. 2); and our chairs have similar terminals to their legs, and a little carved foliage or fruit on the legs and back (as in Fig. 3); and the sofa or couch is designed in the same spirit. In our sideboard or chiffonier, we introduce more richness still. Here the forms may be less conventionalised, and groups of flowers and fruit, of animals or human figures, may be arranged in the panels, or on the back and at the top. At the top of our mirror, and at its lower angles, we have some simple arrangement of natural forms—not too heavy, nor too attractive and fantastic; and the scrolls to the gaselier pendant are foliated, and the balance-balls and globes have neat and appropriate designs, consisting also of natural forms.

Fig. 6.

Thus there is a harmony and uniformity observable in the whole scheme of decoration, and each object looks as if designed with reference to all the rest.

Again, if our taste incline us towards a more geometric and conventional kind of ornament, we should in like manner carry the same treatment throughout the furniture and decorations. We must not have in one place a floral design, with all the details carefully copied from Nature, while in another part we have mere geometric forms and conventional foliage, as in the Moresque decorations. A comparison of Figs. 4 and 5 will strikingly illustrate the incongruity which may arise from the violation of this rule. In these examples, we see two treatments so utterly opposed in spirit that to place them in the same room would show the greatest ignorance of ornament, and want of taste. Each object indicates a distinct style of ornament, and whichever is selected should be accompanied by objects which, both as to their general structure and decoration, are in keeping with it.

The first thing to be considered in the selection of objects of furniture is their suitableness, both as regards size and shape, and these should be regulated by their intended position and use. Fantastic shapes should be studiously avoided; and as simplicity rarely offends, it is far better, as a rule, to select forms which are simple and unassuming. In determining the size, too, it is better to choose furniture which is a little small than such as appears large and cumbrous. A room never looks well when the objects of

furniture look disproportionately large. It is best to avoid it; and it is a better fault not to go far enough than to go too far, for where the furniture is too large for the room, or too elaborately shaped or decorated or disproportioned to the position and means of the owner, it always has an appearance of vulgarity, which is easily avoided by keeping on the side of simplicity and unpretentiousness.

Some seem to think that you cannot have too much of a good thing, and that the more ornament you can introduce the better. This, however, is a great mistake, for such excess of elaboration marks the degeneracy of most styles of ornament, while in the best periods of art simplicity has generally been one of the leading principles. The sideboard (Fig. 5) is an example of this excessive elaboration, and looks as if it had been made and then smothered with ornament. This leads us to another important consideration: viz., the method of ornamenting furniture. So far as possible, it is best to let the ornament arise out of the construction (as in Figs. 1, 2, 3, 4, 6, and 7), and not to appear as if stuck upon the surface (as in Fig. 5) without any other connection with the object; but it too often happens that the piece of furniture is regarded only as offering a surface which must be covered with decorations; and ornaments as large in size and quantity as possible are merely spread over it, without any adaptation or thought about suitableness.

Wherever it is possible, the supports or other parts of the construction should be made ornamental features, by being arranged in graceful lines, or carved into elegant shapes (as in Figs. 1, 2, 3, 4), in which the supports and leading lines are in themselves ornamental, and do not depend for their beauty on the enrichment carved upon them. An additional beauty, however, is imparted by the tasteful enrichment of the constructed forms; but it is better that this should be secondary, the graceful shapes of the members being the first consideration, and then their enrichment with carving, inlaying, or painting.

In the wardrobe (Fig. 7), for example, the structural forms, though very simple, are ornamental and tasteful in design, and these are further improved by being enriched with chaste little ornaments carved on the mouldings, &c.; the only decorative forms which appear to be applied or put on without forming part of the constructive members, being confined to such parts as naturally suggest some decoration being placed upon them.

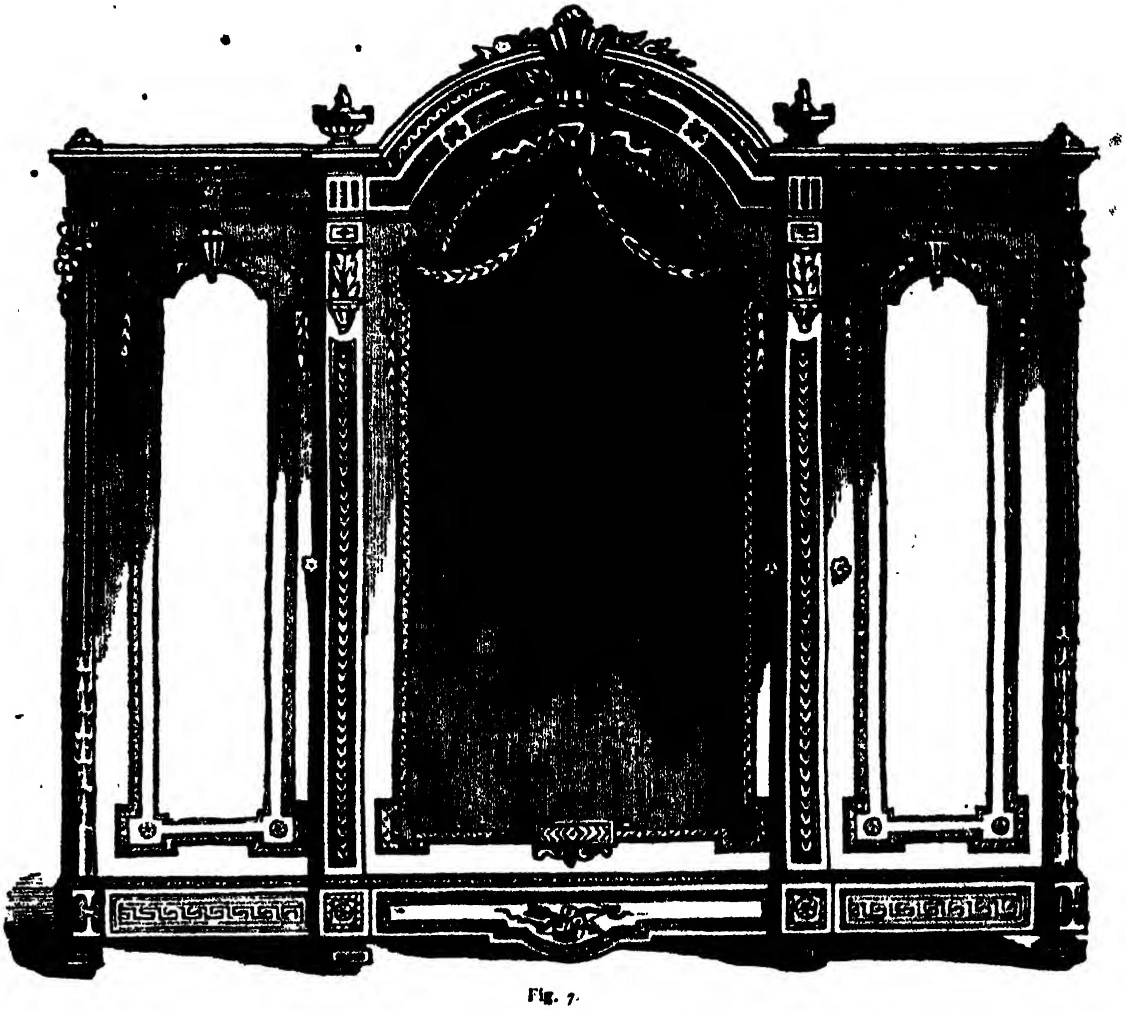


Fig. 7.

But this is a very different method from that adopted in the sideboard (Fig. 5). Instead of the moulding of the back being itself enriched, whatever beauty its own curve might have had, has been disfigured by flowers and foliage being stuck over it; and the same with the beads of the panels, and, indeed, parts of the columns also.

Again, we must be careful that ornamental forms in relief—such as carved work—do not project so much as to be liable to injure the dresses of those who pass near them (as in Fig. 5). But we shall have more to say on suitable enrichment in a future article.

COOKERY.—LIII.

FRUITS (*continued from* *p.* 64)—JAMS, ETC.

A GOOD plum is one of the most wholesome and agreeable fruits with which horticultural skill has supplied our tables. Its price is moderate. Its soft and sugary flavour is heightened by a delicate aroma which loses nothing by cookery. If its juicy flesh contain no great amount of nutriment, it is at least easy of digestion.

The numerous ways in which plums can be prepared add considerably to their commercial value, and render their culture extremely important in certain districts of the Continent. They are made into preserves of various kinds, both with and without sugar. In the latter case the cooking process is greatly prolonged until the concentration of their natural sugar makes the addition of any other unnecessary. By fermentation alcoholic liquors, raki, and zwatschenwasser, are obtained from plums. Plums are also preserved, in exactly the same way as cherries, in brandy; the smaller kinds, as the mirabelle, being preferred for the making of plum brandy.

Dried Plums (known here as French plums, in France as *pruneaux*) are slowly and carefully deprived of their moisture, by placing them alternately in the sunshine, and in an oven. Lately special ovens and apparatus have been contrived, which hasten the operation and render it more certain. Dried plums are the object of a considerable trade in different parts of France, particularly in the Touraine and the Agenois. In the latter province, the grand centre of production is Villeneuve d'Agen, and especially the cantons of Clairac and St. Livrade; hence they are often called *pruneaux d'Agen*. In those localities, the culture of the plum takes the lead of all other husbandry. The varieties principally employed for drying are the *prune robe de sergeant* and the *prune de roi*. The department of the Var—and notably the town of Brignoles—is likewise celebrated for the dried plums with which it regales all the north of Europe.

Bullaces, bottled as directed for green gooseberries, are valuable for winter tarts; while the housekeeper who has bullace or damson cheese in store need little envy her competitor who parades a slab of guava jelly.

Stewed Prunes.—Steep them an hour in as much cold water as will cover them. Then put them into a stewpan with the same water, after allowing the sediment it contains to settle. Add lemonpeel and cinnamon or cloves; sugar will be unnecessary, unless you want them *very* sweet. Let them stew for half an hour or longer; then add wine according to your discretion, and let them stew another twenty minutes. They are intended to be served cold at dessert. By removing the stones and boiling down the prunes to a thick paste, you obtain a preserve or jam which is excellent for roly-poly pudding, lay tarts, and other like purposes. Prunes were formerly an ingredient in the true Scotch cock-a-leekie soup.

Brandied Cherries, or Cherry Brandy.—For this the morello or morel cherry is always selected, and it fetches a higher price in consequence. It is the latest of all the cherries in ripening, and succeeds well trained against a north wall, where its fruit is more easily protected from birds than when grown as a standard. On account of its acidity, it is seldom used as a dessert fruit; nevertheless, if allowed to hang till fully ripe, it is very refreshing and agreeable to many palates. The morel cherry-tree, which is an abundant bearer, makes an elegant standard, having a drooping, almost a weeping, habit of growth. Let the cherries be gathered in dry weather; wipe them one by one with a soft cloth; reject every fruit which has the slightest blemish; cut the stalks to half their length. Put them gently into a large glass jar, so as not to bruise them. If you have two pounds of morels, lay over them two pounds of crushed lump sugar, and pour over them rather more than enough to cover them—say three pints—of the best spirits of wine, of the strength ordinarily delivered in the trade, and let them stand to soak. This will retain the flavour of the cherries purer, and be brighter in colour than brandy, especially if an inferior sample of the latter is used, which sometimes occurs in consequence of the mistake of supposing that the sugar and the fruit will make bad spirit pass for good.

For the proper keeping of all kinds of preserved fruits, a dry and cool closet or cupboard is indispensable; it is also of great importance that the tops of the jars should be made perfectly air-tight. The old-fashioned method of spreading paper dipped in brandy on the top of jam or jelly is worse than useless, as the spirit will evaporate and leave the fruit unprotected. The best method of closing is, first to lay over the top of the jams, &c., a piece of clean tissue or thin writing paper; then to take thick unglazed white paper (which is sold for the purpose), and cut out pieces half an inch larger all round than the tops of the jars; well beat up white of egg and a little flour; spread the mixture with a brush over the paper, and place it with the egged side downwards over the jars. It will adhere closely to the edges, and need no tying, and the egg and flour will fill the pores of the paper, and render it completely impervious to air. Preserves thus fastened down never get mouldy.

Fruit for preserving should always be gathered when perfectly dry, and boiled down as soon as possible after gathering; if it remains for any length of time before being preserved, a slight fermentation will take place, which will injure the flavour. If the fruit is allowed to become over-ripe, the preserves will be mawkish and deficient in flavour. All unripe, decayed, or otherwise imperfect fruit should be carefully picked out. The boiling should proceed rapidly for a short time; the fruit is neither likely to keep well nor to be of a good colour, if it is allowed to simmer for a long time. Juicy fruits, such as currants, raspberries, &c., which are not required to be kept whole, are better when allowed to boil for several minutes before the sugar is put into the pan. Fruit, which it is desired to keep unbroken, should have a little sugar sprinkled over it a few hours previous to boiling, to draw the juice, and as this will rarely be sufficient, it should have a little juice from other fruit put with it into the pan; red-currant juice may safely be used for this purpose, as it will not spoil the flavour of any other kind of fruit.

We supplement our list of receipts for jams, &c., given at page 220, vol. i., with the following:—

Rhubarb Jam.—Take sticks of rhubarb and cut them into 2-inch lengths, but do not peel them. To each 6 pounds of rhubarb, add the peel and juice of one lemon and 4½ pounds of lump sugar. Boil briskly for twenty-five minutes.

Damson, Bullace, or *Common Plum Jam.*—Place the fruit in a stone jar, and let it stand in a cool oven to simmer for several hours. Then boil briskly in a kettle or pan for twenty minutes, with three-quarters of a pound of sugar to each pound of fruit.

Irish Orange Marmalade.—Cut Seville oranges into quarters without peeling, and then take out the pips and slice the orange very thin with a sharp knife. To every pound add 3 pints of cold water, and let it stand with the fruit twenty-four hours. Boil till the slips of peel are quite tender, which will require about three hours of slow boiling. Let the marmalade stand till the next day, then weigh it, and to every pound of boiled fruit add 1½ pounds of lump sugar, powdered and sifted. Boil the whole till the syrup jellies and the slips of peel are quite transparent, which will take from half an hour to an hour, according to the condition of the oranges and the state of the fire. Before boiling the marmalade, after the pan has been well cleaned, take a piece of lemon and rub the pan, that perfect cleanliness may be insured. This marmalade is superior to ordinary Scotch marmalade.

RABBITS.—II.

VARIETIES AND GENERAL MANAGEMENT.

Varieties.—All the domestic breeds are merely varieties of the common wild rabbit, and those are found to be most hardy and healthy, and to breed most freely, which most nearly approach it in growth and colour. Those stoutly built, moderate in size, rather short in ear and leg, and among which unmixed brown, black, and yellow are the predominant colours, are recommended as the most profitable for keeping on a large scale. Though a fancy rabbit will sometimes sell for from £5 to £20, the common kind is, as a rule, more likely to pay. Fancy rabbits demand a large original outlay and much more attention; they are more delicate, and only a few of them can be sold for remunerative prices; the keeping of such may be good as a hobby, but not as a matter of general economy. For the benefit, however, of those who may wish to keep fancy rabbits, we give a short summary of what are held seen to advantage in fancy rabbits which have attained maturity.

The most esteemed colour for fancy rabbits is held to be tortoiseshell of a rich brown, white, and yellow; next to this is black and white, then fawn or fawn and white, and afterwards mouse colour, and pure white with red eyes; wholly black or brown being thought least valuable. The manner in which mixed colours are distributed also affects the value; the greater part of the back, haunches, and body should be of the dark colour, or only slightly spotted with white; a chain of dark should run up to the shoulders; the rest of the fore part should be variegated with black and white, but there should be most of the latter; dark should preponderate on the head, especially round the eyes and on the nose, but it should not be without white. It is essential that the ears should be dark. The belly should be wholly white; any white or grey hairs upon the dark spots are held to be a defect.

A rabbit which possesses all these qualifications in the most complete manner, and combines with them good

THE HALF LOP. THE OAR LOP.

to be the points of beauty in those animals, and the full possession of which constitutes their value.

The length of the ears, and the manner in which they fall or "lop," is considered to be of great importance. A rabbit whose ears measure less than fourteen inches from tip to tip is not admitted to be a fancy animal, and, in addition to this, they must fall in what is held to be a graceful manner. They may fall in several ways, each of which has its recognised value. The most highly-prized fall is the *real lop*, in which the ears slant downwards from the roots by the sides of the face, so that the tips touch the ground when the head is in its usual position. To be perfect, the hollows of the ears should be turned so completely backwards that the outer or convex side of them only may be seen from the front; they should not stand much outwards, and both should fall exactly alike. The *oar lop* ranks next; in this the ears fall horizontally outwards, like the oars of a boat, from either side of the head. The *horn lop* is when the ears fall straight to the front over the face; this is considered farther from perfection than the preceding, but preferable to the *half lop*, which consists in one ear alone falling. The weight of this generally drags the other ear so as to incline it to the wrong side of the head.

The size of the "dewlap," or loose skin which hangs from the jaws, and extends along either side down to the neck, is thought important. This feature is only to be general symmetry, is held to be perfect, and is highly valued. Such are, of course, very rare.

The wild rabbit is not easy of domestication. With a view to rendering his stock more hardy by admixture, the writer has made numberless attempts to rear the young of the wild with tame rabbits, but he has not found it possible to overcome the inherent Bohemianism of their nature. The wild rabbit, even when very young, has a horror of being looked at, and hides itself if it be possible. Most of those alluded to succeeded in making their escape, others died, and one only was reared to maturity; even with this the desired end was never attained.

General Management.—Although does will produce seven or more litters in the course of a year, experienced breeders consider it best to allow them to have five or six only. If kept warm and well fed, they will continue to breed throughout the winter; but, as food is scarce at that time, winter breeding is not recommended. The number of young at a birth varies from three to twelve, or sometimes more; from six to eight being the usual litter. Some persons make a point of not allowing a doe to rear more than six, and of killing all the smallest and weakest beyond that number. Suckling this limited number exhausts the doe less, and the young become finer, but such care is superfluous in a hardy stock, and is only worth practising with fancy rabbits. With common rabbits we should rather recommend that the young should

never be looked at till they leave the nest, as examining them disturbs the doe, and sometimes causes her to kill them. The buck and doe should not be left together more than ten minutes. The period of gestation is thirty days. Two or three days before her time for kindling, some fresh hay should be given to the doe, with which to make her nest, and she will line it with the soft fur from her own belly. The buck should never be allowed to have access to the nest, or he will probably kill and eat the young, as indeed the doe herself will sometimes do.

BREAD-MAKING.—II.

All good managers are agreed that home baking is economical, unless the family be an exceedingly small one; and that generally a saving of about one-eighth may be effected by it. We may take half a bushel of flour (28 lbs.) as about the quantity which will be consumed in an average middle-class family while good, and this will produce 39½ lbs. of bread, or nearly equal to nine of the bakers' half-quartern loaves. The following is the most approved method of baking such a quantity:—

Place the half-bushel of flour in a heap in an earthen pan or wooden kneading-trough large enough to hold double the quantity take half a pint of good yeast, add to it an equal quantity of lukewarm water, and strain through a hair sieve; then stir into it, and mix up with a spoon, as much flour as will bring it to the consistency of thin batter. Pour this into a hole made in the middle of the heap of flour, and sprinkle over it flour enough to cover it. This must be kept warm by covering with a cloth and placing near the fire, if the weather be cold, till fermentation takes place, or, in technical language, till it "rises," which will require from one to two hours, according to the activity of the yeast and the temperature of the weather. This process is called "setting the sponge." When the sponge has risen, cracks will appear in the flour sprinkled on the top, and the whole flour will have to be mixed, with water about the warmth of new milk, into dough. The quantity of water required will, in weight, be equal to about half that of the flour, and in half of that quantity two ounces of salt must be dissolved. This must be poured into the flour a little at a time, and mixed in, and afterwards as much of the remaining water without salt as may be required. Some flour will take rather more water, some less, according to its quality, good flour absorbing most. The kneading of the dough must be thorough and complete, the ferment mixed in every part, and all lumps moistened and broken, or the bread will not be good. The dough will at first stick to the fingers, but by the time it is sufficiently kneaded it will leave them freely. The dough should now be left in a lump in the middle of the kneading-trough, a little flour dusted over it, and again covered up and kept warm, that it may rise again. In about an hour or an hour and a half it will be found to have risen sufficiently; it must then be cut into pieces of the size of loaves and put into tins, or moulded, by rolling on a board sprinkled with flour, into the required shape, and then dusted over with flour and put into the oven. It should be remembered that much handling in this stage will tend to make the bread heavy.

Some persons bake without setting sponge. In this case the yeast (which should be one-half more in quantity) is merely mixed with the warm water used in moistening the flour, and the dough will then require a longer time—from two to three hours—for rising. For baking without setting sponge it is essential that the yeast be good; if it is in any degree doubtful it is safer to set sponge. Inexperienced bakers will always do well, however, to set sponge. In cool weather, if skim milk be at hand, both the quality and quantity of the bread may be improved by using it instead of water. Boiling water should be added to it, just sufficient to bring it to a proper temperature. Should too rapid a fermentation take place, owing to too much yeast or the warmth of the weather, it should be checked by removing the dough to a cool place, otherwise it will become sour, and the bread will not be good. In hot weather dough must always be carefully watched, lest this change take place. A little magnesia or carbonate of soda mixed with the dough neutralises the excess of acetic acid, and is good to prevent it.

For baking bread, a brick oven is preferable to an iron one. In the latter, more care will be required, or the loaves will burn; and it is in this case desirable that they should be baked in tins. 480° has been stated to be the proper temperature at which to bake bread, but it appears that the process can be performed at temperatures ranging from 320° to 572°, more or less time being allowed; as a practical test of the oven's being of a proper heat, it is recommended that a little *new* flour be sprinkled at the mouth; if this turns black without taking fire, the oven is ready to receive the bread. The time during which the loaves should remain in the oven will generally be about two hours. When drawn, they should be laid bottom upwards, and a cloth spread over them to prevent too rapid evaporation. In most places bakers undertake to bake home-made bread at a charge of one halfpenny per loaf.

The quantity of bread may be increased at little cost by the addition of potatoes or rice. Five pounds of potatoes, pared, and boiled or steamed till mealy, should be rubbed through a coarse sieve, and mixed with the water with which the dough is moistened; or one pound of rice, boiled till quite soft, and then mixed with the dough. This will increase the quantity by from one to two loaves, and will make the bread lighter and better-tasted; it will also make it keep better in warm weather. The nutritive value of the bread will not, however, be increased in the same proportion as the bulk, for though rice contains starch and gluten, the latter is not present in so large a proportion as in wheat; and potatoes contain starch, but not gluten.

The best kind of receptacle in which to keep flour for home-baking, is a chest or "bin" of suitable size, made of tin, with a partition of the same material in the middle. Enough flour should be kept in stock for from two to three months. That newly bought can then be placed in one compartment, while from the other, that required for use can be taken, and the use of new flour thus avoided. Tin is more cleanly, and more proof against vermin, than wood.

In wet summers it frequently happens that the wheat germinates in the field before it can be harvested or stacked. The effect of this is to dissolve the gluten, and to convert the starch of the flour into sugar to such an extent, that fermentation is retarded, and the dough cannot rise; the bread is, in consequence, heavy and indigestible. In ordinary wet seasons, the miller remedies this evil, to a great degree, by mixing good wheat with the damaged; but within the present century there have occurred some three seasons in which nearly the whole of the wheat crops, not only of England, but of the Continent also, were injured, and the quantity of old corn proved insufficient for the purpose of mixing.

Grown wheat may always be improved by kiln-drying before grinding; and with care, wholesome though still inferior bread may be made from it. It is useless to employ an excessive quantity of yeast in the hope of making the bread light, for the flour deprived of gluten cannot retain the gas, and much yeast will only develop still more the bad quality and taste of the flour. The dough should be mixed as stiff as possible, and moistened with cool water; and potatoes and rice should be used freely. The loaves should be made smaller than the

ordinary size, and should be quickly put into the oven, which should be heated to above the usual temperature. The bread should not remain in the oven above half the usual time, nor should it be eaten till two days after baking. Grown flour is found to make tolerably light bread with the addition of carbonate of magnesia, in the proportion of forty grains to the pound if the flour be very bad, and in smaller quantities if it be only partially damaged.

HOUSEHOLD LAW.—XIII.

RATES AND TAXES.

WHEN Dr. Johnson in his Dictionary defined excise as a hateful impost, he did but express towards one tax in particular what the majority of people feel against taxes in general. There seems at all times to have existed a hostility towards taxes, of whatever sort, though it is obvious that without contributions from the people the business of the country could not be carried on. This is true, not only of taxes which fill the imperial coffers, but of rates which are levied for the purposes of local government. Perhaps the hostility has proceeded rather from the manner in which the taxes have been levied than from hatred to the taxes themselves. Down to a comparatively recent period of the world's history, the practice was general of farming the revenues of the state to persons who paid a sum down to the government in return for permission to collect the taxes on their own account—a practice which, from the very nature of it, was likely to prove oppressive, and which did, in fact, provoke many a rebellion.

There are two kinds of taxes which the modern householder is liable to pay—the Queen's taxes and the parochial rates. These, again, are subdivided into several heads.

The Queen's taxes, or, as they are often called, the assessed taxes, include those charges which are imposed by parliament upon the country generally. Among them are the income tax, the property tax, the house tax, the tax on armorial bearings, on male servants, and carriages. These taxes are variable, both in amount and in the objects to which they are applicable. Parliament at the instance of the Chancellor of the Exchequer modifies, remits, or imposes a tax. To the Chancellor of the Exchequer is usually left the decision of the taxable articles, and the amount of tax to be levied; but parliament reserves to itself the right—which it sometimes exercises—of setting aside the Chancellor's proposals, and of changing his financial policy. But the taxes, once agreed to, are laws of the land until the power which created them sees fit to annul or to alter them.

For the purpose of collecting the Queen's taxes an expensive and elaborate machinery is in existence. There are collectors and surveyors of taxes, and there is a Board of Inland Revenue at Somerset House, to which appeal is to be made in the event of any complaint against the acts of the subordinate agents. The way in which most of the assessed taxes, including income tax, are raised is by means of declarations to printed schedules, which are left at each house. A statement is printed, with blank spaces to be filled in, respecting each tax authorised, and the person to whom it is addressed is required to fill up the blanks with written answers as to his liability or alleged exemption from the taxes in question. To the statement he affixes his signature in full, the signature being taken as a guarantee that the declaration is a truthful one. A note at the foot of the paper intimates, in pretty significant terms the pains and penalties to which the false declarator is liable.

Taxes upon household servants, carriages, &c., are to be calculated upon the largest number of the taxable objects in possession during the past year; so that though at the time of signing the declaration a man may not have more than one horse, yet if he has had three horses during the past year, he must pay upon three. If, at the time of making the return, he has three horses, and last year had but two, he will pay upon two only.

Dogs are no longer taxable under assessment, but by means of licence, the cost of which is the same for every kind of dog—viz., 5s., payable in the month of January in every year.

Income tax is regulated either by the actual income for the past year, or, if income is fluctuating, as it is in business, or when derived from uncertain sources of revenue, by an average of the income of the last three years.

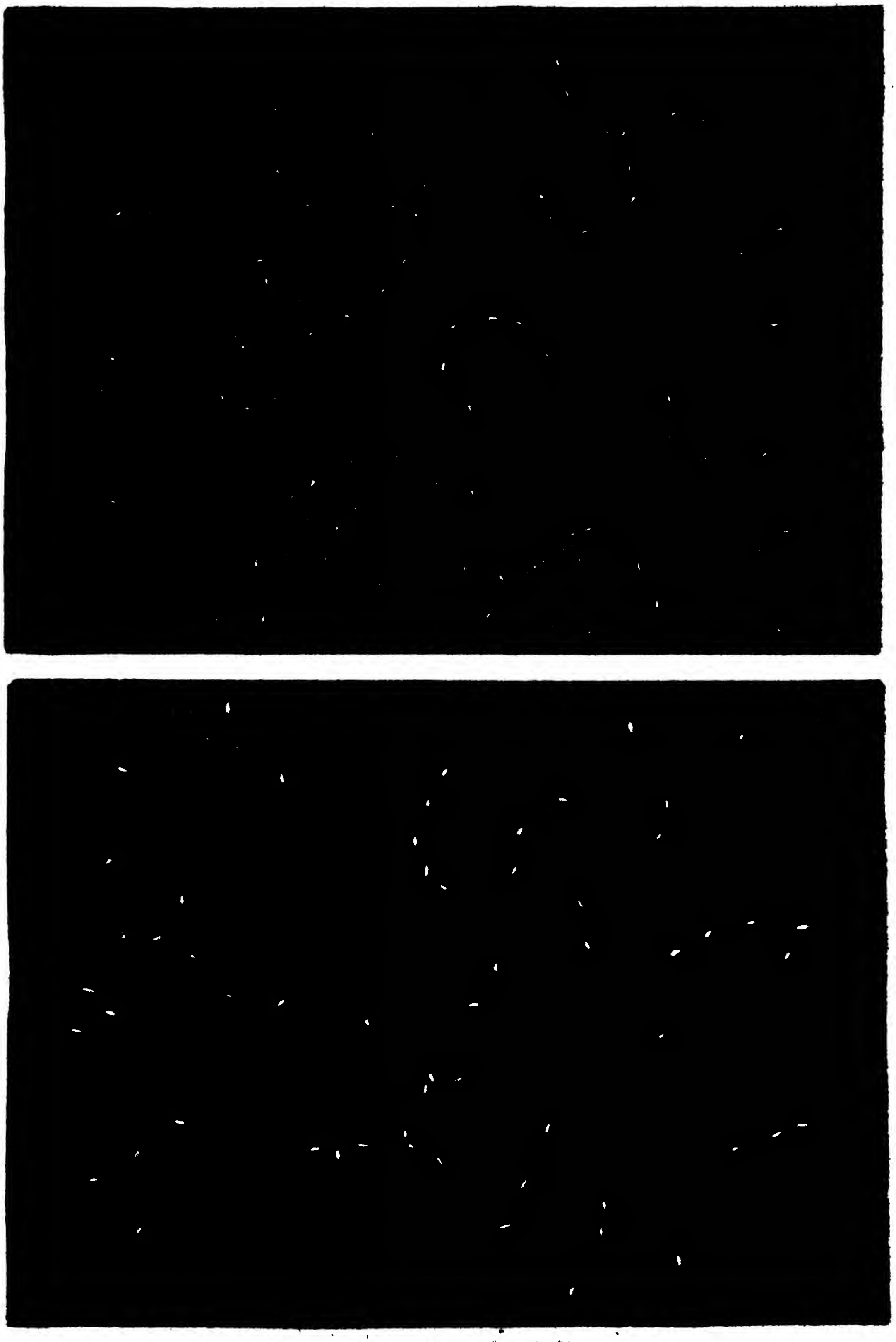
Property tax is identical with income tax, and tenants of houses or lands who may be called upon to pay landlord's property tax upon the value of their holdings, are empowered by act of parliament to recoup themselves out of the next rent that may fall due; and the landlord is bound, under a penalty of £50, to allow the same to the tenant.

House tax is levied partly on the statement of the tenant as to the rent he pays—this statement being verified by production of lease or agreement—chiefly on estimate by the government surveyor of the value of the house. In estimating value, it is the practice of the government surveyor to reckon what is called the rack rent, or the highest possible value of the house. Thus it may happen sometimes that a house of which the rent is £50 is assessed for the house tax at £60, the surveyor being of opinion that, under certain circumstances, the house might be expected to command that rent. Should a householder be assessed, as he may think, at too high a rate, he will do well, in the first instance, to remonstrate with the district surveyor; and if he refuse to abate, and the tenant be still of opinion that the assessment is too high, he should lodge a formal complaint with the Board of Inland Revenue, who will grant him a hearing, and decide finally upon his case. Houses improve or diminish in value according to neighbourhood; re-adjustments of the assessment may therefore be made from time to time, either at the instance of the surveyor or the tenant. It is, of course, to be borne in mind that improvements to a house increase its value, and render it liable to increased assessment.

Debts due to the Crown are recoverable by summary process before a magistrate; they are also the first charge upon the estate of a man, taking precedence of all other claims.

Parochial Rates are those taxes which are levied upon parishes by and with the consent of the representatives of the parish, and they vary in different localities, according to the different expenses which have to be defrayed. In London they include poor's rate, lighting rate, police rate, the general rate for repairing and making roads, cleaning the parish, and defraying the expenses of the acts for the better local management of the metropolis; and the metropolis main-drainage rate. In the extra-metropolitan districts the last-named rates are, of course, omitted.

The Poor Rate.—This rate, in its present form, is as old as Queen Elizabeth's reign, during the latter years of which it was called into existence, in order to supply, to some extent, the want occasioned by the abolition of the monasteries. While the monasteries lasted they were charged, or rather they considered themselves charged, with the duty of seeing that no one needed the necessaries of life, or went poor and naked and hungry. They gave indiscriminate relief to all comers, and, while relieving many doubtless deserving and unfortunate persons, encouraged also the idle and the lazy. When these institutions were abolished by Henry VIII., the grantees of their lands were charged with the duty of maintaining hospitality, and of relieving the poor hitherto relieved by the religious houses. As a matter of fact they disregarded



ENDS FOR A WHITE MUSLIN TIE.

this condition of their grant, and there was not any disposition, if there was any power, to make them observe it. The poor and aged, the infirm and the destitute, wandered about the country till death relieved their sufferings; the more desperate of them, impelled by the hard master hunger, being sometimes driven to acts of violence and lawlessness, filling the ways with rapine, and terrifying wayfarers by the imperious character of their mendicity. Various acts of parliament were passed against "valiant and sturdy beggars," and punishments were provided for those who could not find means of living independent lives; but as these proved, of course, ineffectual to check the stream of human misery, and as the old means of relief were taken away, it became necessary for the legislature to do something towards providing relief for the poor of the kingdom. The first poor law was passed towards the end of Elizabeth's reign, and has served as the basis of all the poor laws since agreed to. Each parish in the country was bound to maintain its poor in some sort of decency, and to prevent the exhibition of the squalid misery which was so patent everywhere. Rates were ordered to be levied by those who were constituted guardians of the poor, and legislative sanction was given to the principle that the poor are not to be allowed to starve. The poor rate is the basis on which all other rates are made, so that if anything is wrong with the poor rate it behoves one to get it rectified at once. Considerable difficulty having arisen in the matter of assessment, various acts of parliament have been passed to regulate the conduct of guardians in respect of it; the general rule, however, being that from ten to fifteen per cent. off the average rent of a house is the proper sum at which the house ought to be assessed. The act under which the parish authorities are authorised to levy rates, declares that the assessment shall be made "on an estimate of the net annual value of the several hereditaments" held by the parishioner, and defines "the net annual value" to be "the rent at which the same may reasonably be expected to be let from year to year, free of all usual tenant rates and taxes, and deducting therefrom the probable average annual cost of the repairs, insurance, and other expenses necessary to maintain them in a state to command such rent."

Such being the basis of calculation for rates, it follows that if improvements be made by the tenant, or other person, so that the house is really worth more than formerly, the assessment rate will be increased in proportion.

The machinery provided for the assessment and levy of poor rates was considered to be adaptable for other purposes of local self-government; accordingly by the Local Government Board Act, 1871 (34 & 35 Vict., c. 70), proceeding on the preamble that it is expedient to concentrate in one department of the government, as thereinafter provided, the supervision of the laws relating to the public health, the relief of the poor, and local government, it is enacted that a Board shall be established, to be called the Local Government Board; and from and after the establishment of such Board, the Poor Law Board (which formerly had control of the poor rates) shall cease to exist, and all powers and duties vested in or imposed on the Poor Law Board by the several acts of parliament relating to the relief of the poor, and any other acts, or vested in or imposed on one of Her Majesty's principal Secretaries of State by the enactments in that behalf mentioned in the first part of the schedule annexed to the act, so far as such powers relate to England, or vested in or imposed on Her Majesty's Privy Council by the enactments in that behalf specified in the second part of the said schedule, shall be transferred to and imposed on the said Local Government Board; and, except as otherwise provided by the act, shall be exercised and performed by such Board in like manner and form, and subject to the same conditions, liabilities, and incidents respectively, as such powers and duties might before the passing of the act have been exercised and performed by the authorities in whom the same were then vested respectively, or as near thereto as circumstances admit. The Local Government Board shall consist of a President, to be appointed by Her Majesty, and of the following ex-officio members:—the Lord President of the Privy Council, all Her Majesty's principal Secretaries of State for the time being, the Lord Privy Seal, and the Chancellor of the Exchequer. The duty of making and levying the poor rate, or parochial fund out of which the relief is to be afforded, still belongs, as before the late changes in the law of relief, to the churchwardens and overseers, and the concurrence of the inhabitants is not necessary. But, for the better execution of these duties, the recent acts for the amendment of the poor law authorise the appointment of collectors and assistant overseers; the rate is raised prospectively for some given portion of the year, and upon a scale adapted to the probable exigencies of the parish; and the act of Elizabeth directs that it shall be raised by "taxation of every inhabitant, parson, vicar, and others, and of every occupier of lands, houses, tithes impropriate, propriations of tithes, coal-mines, or saleable underwoods in the parish." Now, by the Rating Act, 1874 (37 & 38 Vict., c. 54), the liability to rates is extended to (1) land used for a plantation, or wood, or for the growth of saleable underwood, and not subject to any right of common; (2) rights of fowling, shooting, taking, or killing game, or rabbits, and fishing, when severed from the occupation of the land; and (3) mines of every kind not mentioned in the act of Elizabeth. As an occupier, a man is rateable for all lands which he occupies in the parish, whether he is resident or not; but the tenant, and not the landlord, is considered as the occupier within this statute.

By the act of Elizabeth, no rate can be deemed valid unless it be allowed by two justices; and by 17 Geo. II., c. 3, public notice thereof is to be given at the parish church on the Sunday immediately succeeding the allowance of the same. This allowance by the justices is a mere matter of form; but after allowance and publication, any person aggrieved by the rate, and having reasonable objection to it as irregular or unequal, may appeal against it to the next practicable quarter sessions of the county, riding, or division, or in some cases of the corporation or franchise in which the parish is situate.

POINT LACE WORK.—XI.

Our illustration gives a design for the two ends of a white muslin tie, such as is now so universally worn in ladies' home and walking dress. They must be finely and carefully worked, using very fine point lace braid, not too thickly made, and with an edge, and the open stitches largely used, and as frequently varied as possible. The open overcast may surround the pattern as before; but we should recommend that, when braided, the smallest and most delicate point lace cord procurable should be run on the outer edge of the braid, with very fine cotton, the stitches being taken underneath the cord, so as to be quite concealed. The pearl edging must be worked into the braid at the outside of the design. The muslin, measuring about a yard in length, and of the width of the work (about four inches and a half), may be made up into a bow, a plain piece going round the neck, or may be simply tied when used, the lace work being tacked on at the edge of each end, with very fine cotton, and taken off when the muslin requires washing; the lace will last clean for some time. The two designs given may be worked for one tie, or the same one repeated, if preferred; but the variety in them is effective, and as they correspond in style, they look well together.

DOMESTIC MEDICINE.—XXXVII.

DISEASES OF THE HEART (*continued from p. 71*).

Structural Diseases of the Heart.—The heart, it will be remembered, is made up essentially of flesh or muscular fibre. It is a hollow muscle which contracts firmly on the blood, and sends it onwards. To prevent the blood going backwards, there are several valves at different parts of the heart. The heart is lined throughout with a smooth membrane, which also covers the valves. Moreover, the heart is covered with a smooth membrane, and is contained in a sac or bag, which is very smooth in its lining, and which contains a little fluid. In the structure of the heart, then, we have—1, muscle, with a smooth covering; 2, valves; 3, a lining membrane, and a sac or bag also lined with a smooth membrane. Now, any one of these structures may become diseased. The muscle of the heart may be affected, or the valves, or the lining membrane, or the covering membrane. By far the most common cause of injury to the heart's structure is rheumatic fever; and the harm which rheumatic fever does is generally done to the valves. We shall accordingly speak shortly of

Valvular Diseases of the Heart.—In a large majority of cases the valves of the left side are those which suffer. It must not be supposed that in every case of rheumatic fever in early life the heart suffers; but in a considerable proportion of cases, in young patients, the heart does suffer in its valves. The smooth tendonous structure of the valves is not unlike that of the joints, and it is not remarkable that the rheumatic material which fastens upon the joints should also show a tendency to attack the heart. The symptoms of this happening in rheumatic fever are scarcely such as to be explained to non-medical readers. Sometimes they are very plain, in the form of pain over the heart, shortness of breath, additional fever, and so on. But the stethoscope throws great light on such cases, by revealing new sounds as the heart beats. In many cases the symptoms are very slight; and, apart from the stethoscope, the rheumatic attack upon the heart would be overlooked. There is reason to believe that rheumatic attacks of the heart are less frequent of late years, owing to improvements in the treatment of rheumatic fever.

We desire to say a few words as to the importance and significance of

Rheumatic Disease of the Valves of the Heart.—The effect of the attack is to thicken the valves, and make them less pliant than usual, so that they do not act quite so well, nor close quite so perfectly as in health. A little thickening of the valves may cause a loud noise to be heard through the stethoscope, and yet may not be of much consequence. It may not much impede the action of the heart or the flow of the blood. It is certain that unnecessary alarm and fear have been occasioned by knowing that the heart was affected after an attack of rheumatic fever. Provided that care is taken to avoid a repetition of the attacks, and that care is also taken to save the weak heart as much as possible, little inconvenience may result from the slighter degrees of valvular disease; and it is undoubted that many persons so affected are amongst the most useful and effective members of society. So long as the general health is good, and the muscular power of the heart keeps efficient, so long will little practical inconvenience be felt. We speak of the slighter cases. Where the injury done is greater, it is shown by shortness of breath, or palpitation, or exertion.

Treatment.—The treatment of diseases connected with an alteration of the valves of the heart must be left to the doctor. But a patient with faulty valves may keep himself out of the doctor's hands as much as many other people by taking care in regard to two or three points. 1. To avoid running and all violent forms of exercise, excitement, or work, and to cultivate that frame of mind which will not be disturbed. It is astonishing how much piety and philosophy can do to make us still, and even, and incapable of injurious disturbances. 2. To avoid exhaustion of mind and body. This is to be done by avoiding two things—overwork and going too long without food. When the heart is weak, a little food in the night even, or just before going to bed, should be taken. 3. To avoid causes of fresh rheumatic attacks, by wearing flannel in most parts of the year, and being on one's special guard in wet and cold weather. Diet should be nourishing and warm, without being heating. Intemperance in eating or drinking, especially the latter, is sure to make any valvular disease quickly worse. With these precautions, we repeat there is no reason why persons with the valves of the heart diseased from rheumatic attacks should not live long, and useful, and pleasant lives, and die as leisurely as other people die.

The fear of sudden death in connection with heart disease, is a subject to which we should allude. This fear is felt to an unnecessary extent. A considerable number of people with heart disease do not die suddenly, and very many who do die suddenly would not, if the simple and obvious precautions we have recommended were taken. It may be observed that people who die suddenly from heart disease, often do so just after excessive and worrying exertion, or after foolish fasting, or other obvious indiscretion. The great authority of Dr. Stokes, of Dublin, may be taken on this point of sudden death. He says:—

> "It will not be out of place to remark that sudden death in disease of the heart is by no means so frequent as is generally supposed. In the great majority of cases, death occurs in no sudden or extraordinary manner. . . . So general is the belief that sudden death is the inevitable termination of disease of the heart, that the very suspicion of the existence of such an affection leads to great and injurious mental depression on the part of the patient, and corresponding anxiety among his friends. It will, therefore, be right that the physician, by appealing to the real facts of the case, should do his best to diminish those apprehensions."

Disease of the Covering and Enclosing Membranes of the Heart.—We have dwelt at some length on diseases of the valves of the heart, because they are the parts of the heart that perhaps oftenest suffer. But it often happens also that the sac or bag in which the heart moves is touched with inflammation. It causes even more pain than the valvular inflammation, and the heart, pressed in the spaces between the ribs, is apt to feel sore or tender. The skin is hot, and the action of the heart may come to be more or less embarrassed. Such attacks generally happen in connection with other diseases—such as acute rheumatism, Bright's disease, &c. Of course, they are only to be treated by a medical man; and, indeed, none but a medical man could detect such a condition of the heart, or feel confident as to the fact of inflammation or the amount of it. The only practical instruction we can give to persons affected with rheumatic fever or Bright's disease is, to avoid getting chilled, to surround rheumatic joints with cotton-wool or flannel, and so to dispose the rheumatic matter of the system to locate itself in the joints in preference to the heart.

Diseases of the Muscles of the Heart.—Now, it may be asked, is the flesh of the heart never diseased? We began by saying that the heart was essentially a muscle, a hollow muscle. Well, does this muscle ever ail anything? Does it become affected with inflammation, like the valves, or the outer and inner membranes of the heart? or has it any special diseases of its own? The answer to this is, that in inflammations of the membranes of the heart, outer or inner, the muscular substance near the inflamed membrane does occasionally become inflamed; but muscle itself is not very liable to inflammation, and, practically speaking, is not much considered

in the rheumatic inflammation and other inflammations which affect the heart. And yet the muscular substance of the heart is liable to changes, and these changes are of very great interest and importance; and they are the more worthy of some exposition here, as they are produced insidiously, and may be prevented to a great extent in many cases, in others deferred, by precautions which will appear sensible even to non-professional readers. To a man with heart disease it is of the highest importance to keep the muscle of the heart in good healthy condition. So long as this is the case, it will go far to counteract any inconvenience from the impediment caused by any slight fault of the valves of the heart. It is, in fact, only when the muscle of the heart fails, that many persons become conscious of any inconvenience from a disease which they have had perhaps for years. We shall best and most clearly make our readers understand the diseases to which the substance of the heart is liable under three heads:—1. Its structure may fail from want of nourishment, or from too much work. 2. Its structure may be damaged by a habit of taking wrong things, or right things in wrong quantities. 3. The structure of the heart may be impaired from the existence of fevers, especially typhus or typhoid.

1. *The Heart needs Nourishment and Rest.*—Men should remember this, especially if they have any weakness about their hearts. They should give themselves a rest from time to time; and they should rather take a little extra food between meals, than go too long without food. It is astonishing how men will prolong their work and fasting, without thinking that every half hour is exhausting their strength and the strength of their hearts. There is no mystery about the matter—it is one of common sense; and a man who has already a little disease in his heart needs to be specially careful and considerate on this point—not to go an hour beyond his dinner or his tea, and if there is any risk of having to do so, to take a cupful of beef-tea or soup. Very good beef-tea can be made in two minutes, if Liebig's Extract of Meat is kept in the house. Not only should men with weakish hearts remember that they require food, but rest also. They should cultivate a habit of quiet working—of refusing to be worried or to be hurried.

2. *Certain things tend to spoil the Muscular Structure of the Heart.*—Conspicuously, spirits and beer in excess do this. They turn the muscle of the heart into so much fat. Some men drink so absurdly of spirits and bitter beer, that they become lazy and indolent. They distend visibly before your eyes—get big, and bloated, and fat. The muscle of the heart gets less muscular and more fatty. The moral of this is for men not to take heating, fattening things, unless, indeed, they are cold and thin; to prefer food to stimulant; and, if there is any tendency to indolence or obesity, to prefer claret or water to beer and spirit.

3. *Fevers in many cases affect the Structure of the Heart.*—This is one of the effects of typhus and typhoid fevers, especially of the former. The heart beats much less strongly. On this account, among others, much nourishment is required, and in the later stages stimulants are also needed. But this is a case in which doctors will advise.

A few Words to People with Heart Disease.—We end much as we began. People exaggerate the importance of heart disease. In many cases it is a mere nervous palpitation. There is nothing wrong with the heart itself. Even where there is something wrong, the heart only needs to be considered, to go on working very well. We have specified the things that most injure the heart. Let them be avoided. Avoid rheumatic disease by avoiding chills and cold; avoid worry; avoid excess of beer or spirits; avoid going too long without food; avoid hurrying. "In quietness shall be your strength."

WILD PLANTS SOMETIMES USED AS FOOD.

THE value of wild plants as articles of food is less considered in modern times times than formerly. The free intercourse with foreign countries, which has furnished us with many new esculents, and the improved system of culture which has extended and developed the varieties of garden vegetables, has tended to reduce the relative importance of our native wild ones. Our ancestors, who were not possessed of our advantages in these respects, used as potherbs and salads many species which few at the present day would even think of as wholesome or nourishing. The fact of the inferiority of the wild plants is of course evident; still there are even now many times when, in the absence of the cultivated kinds, a meal may be made more nutritious and palatable by their use; in periods of scarcity also, when *any* available food is of value, it is important to be able to recognise the wholesome and reject the injurious. We shall, therefore, devote a little space to the subject.

In his "Encyclopædia of Gardening," Mr. Loudon observes:—"All vegetables not absolutely poisonous may be rendered edible by proper preparation. Many roots, for example, are disagreeable from their bitter and acrid taste; but this might be in a great degree removed by maceration in hot or cold water. The vegetable matter once reduced to a state of insipidity, it is easy to give it taste and flavour by the addition of salt, which is an article never scarce through the influence of bad seasons, or by vinegar or oils; or by other vegetables of agreeable tastes, as of thyme, mint, celery, onions, &c.; or by the addition of roasted carrot, parsnip, potato, or dandelion roots; or of beans, peas, or wheat; or, if it can be had, of toasted bread, which will render almost anything palatable. The leaves of trees and bushes, as the birch, beech, willow, and gooseberry, we are told, were formerly eaten as salads, and there can be little doubt that aboriginal man would eat almost any green thing that came in his way. It may be worth while for man, in his present multiplied and highly civilised state, to reflect on these things, with a view to resources in times of scarcity."

In countries where cultivation is less advanced than our own, plants disregarded among us are still important articles of food. Pig-nuts, which in England are only known to children in certain districts, are in Sweden sold in the markets; and the young leaves of the pilewort form a common salad and potherb of the Swedish peasantry. The Don Cossacks eat as a salad the lower part of the stem of the great cat's-tail reed, common in English marshes; and the Laplanders boil wild sorrel to a pulp, mix it with milk, and preserve it in barrels, which they bury for winter's use. It may also be observed that some wild plants, which are in a raw state absolute poisons, become harmless when cooked. The Laplanders boil and eat, without injury, the leaves of the yellow wolf's-bane, a deadly poison. Others, which are poisonous in a wild state, become innocuous when cultivated; such is the case with celery and lettuce. Other plants, again, which are generally poisonous, are wholesome in particular parts, as the common yew, of which the pulp of the berry may be eaten so long as the stone is avoided.

The following plants have been made use of as greens or pot-herbs:—

Charlock (*Sinapis arvensis*), a common weed in cornfields, nearly allied to and much resembling mustard; the young sprouts gathered in spring make excellent greens. There are few parts of the country in which it may not be collected in abundance. Before improved methods of planting corn enabled farmers to weed their crops thoroughly, flights of pigeons were in many districts kept chiefly on account of their services in eating the seed of this weed, of which they are exceedingly fond. It is

Fig. 3.

Fig. 1.

Fig. 10.

Fig. 2.

Fig. 6.

Fig. 4.

sometimes given to of rapeseed, but improperly, as it is too heating.

Fig. 9.

Fig. 5.

Fig. 8.

Hedge Mustard (*Erysimum alliaria*), otherwise known as *Jack in the Hedge* or *Sauce Alone*—another common weed of the same class—may also be used as greens, or the raw leaves as salad. It has somewhat the odour of garlic, and when boiled separately, and eaten with boiled mutton or salt meat, is considered by some a particular delicacy. It grows plentifully in spring on dry ditch banks and in hedges, and throws up a single stem 2 or 3 feet high; the leaves are heart-shaped and the flowers white. It should be gathered when near flowering.

The *Common Stinging Nettle* (*Urtica dioica*), Fig. 1, is also to be used as greens in early spring, when other vegetables are scarce. In February the tops will generally be found to have pushed three or four inches; these are perfectly tender, and may be gathered and boiled. This plant and its haunts are too well known to need description.

Fig. 7.

The *Black Briony* (*Tamus communis*), a climbing plant, frequent on hedges, and commonly looked upon as poisonous, furnishes wholesome greens from its young sprouts and leaves; but the reader is not advised to attempt the berries or large fleshy roots: neither must he use instead of it the common or white briony, which is poisonous. The black briony has heart-shaped leaves of a dark glossy green.

The *Wild Hop* (*Humulus lupulus*), Fig. 2, a plant almost identical with the cultivated hop, in many places grows freely on hedges and in coppices. The young tops may be boiled; they have an agreeable and slightly bitter flavour.

The *Sow Thistle* (*Sonchus oleraceus*) is a well-known weed, which flourishes in all soils, and abounds in a bitter milky juice. There are two varieties, the prickly and the smooth; the tender tops of the latter may be boiled as greens or spinach.

The *Burdock* (*Arctium lappa*) furnishes tender stalks, which may be cooked as asparagus.

The *Shepherd's Purse* (*Capsella bursa pastoris*), Fig. 3, is well known. It is a plant which varies much in the size and succulence of its leaves, according to the nature of the soil; but generally they will be found to yield good greens, not unlike cabbages in taste, but somewhat milder. Near Philadelphia it is much cultivated as an esculent, and the leaves attain an immense size.

The *Ox Tongue* (*Picris hieracioides*), a common annual in waste places and clayey pastures, affords good greens.

The leaves of the *Spotted Hawk Weed* (*Hypochæris maculata*) may be boiled as greens or eaten as salad, as may also those of

The *Wild Rocket* (*Sisymbrium officinale*), which resembles mustard in taste and flavour. This common annual grows from two to three feet high, and produces yellow flowers.

Of the *Willow Herb* (*Epilobium angustifolium*), the young and tender shoots may be eaten as asparagus, or the leaves as greens.

Fat Hen (*Chenopodium urbicum* and *C. album*). Both these plants, which grow freely among the rubbish of old buildings and on dunghills, may be used as spinach, and are in no way inferior to that vegetable. Most other plants of the same genus may be applied to a similar use. One (the *Chenopodium Bonus Henricus*), English Mercury or Wild Spinach, is cultivated for this purpose in Lincolnshire, and preferred to the common spinach.

Sea Orache (*Atriplex littoralis*) is as good as greens or spinach.

The tops of the *Sea Beet* (*Beta maritima*) may be boiled as greens, or the root used as the white beet. This plant is common on many parts of the coast.

Pilewort (*Ranunculus ficaria*), a common plant in moist grass land and hedges, and remarkable for shining leaves and bright yellow blossoms, is eaten by the Swedes as greens; the young leaves only are used. On the roots are formed tubercles like little figs, which were formerly applied as a poultice for piles, whence the name.

Chickweed (*Alsine media*). This despised little weed, which abounds in gardens and beneath trees and hedges, especially in rich friable soils, makes a good pot-herb in spring.

The *Sea Holly* (*Eryngium maritimum*) is found on many parts of the British coast. The singular family of plants to which it belongs somewhat resemble thistles in their general appearance. They are prickly, have dry horny leaves, and a bluish hue. The young shoots are boiled as asparagus in Sweden. The "kissing comfits" mentioned in Shakespeare were made from the candied roots of this plant.

Solomon's Seal (*Polygonatum vulgare*), a well-known plant, which grows in woods. The young shoots may be boiled. The roots are also dried, ground, and made into bread.

Of the following wild plants the roots are wholly or chiefly the edible parts:—

The *Arrowhead* (*Sagittaria sagittifolia*) is well known in rivers, and is one of our handsomest aquatic plants. It forms a bulb in the solid earth beneath the mud of the river's-bed, which is dried, pounded, and eaten. It is said to have an acrid, unpleasant taste, which might probably be got rid of by washing the powder in water. This plant is much cultivated in China, where the root attains a larger size than with us.

The *Common Arum* (*Arum maculatum*), Fig. 4, known in different districts by a variety of names—wake robin, dead man's finger, lords and ladies, &c.—is common in hedges and woods, where the soil is loamy. It has a tuberous, whitish root about the size of a large nutmeg; this, when fresh, has an acrid taste, which, however, it loses in drying, and becomes insipid. The arum abounds in the Isle of Portland, where it is dug up by the country people, steeped, pounded, and sent to the London market as Portland sago. In addition to its use as food, this powder is said to possess a saponaceous quality, and to clean linen; it is also employed as a cosmetic, and forms the "Cypress powder" of the Parisians. In Egypt and some other countries, plants of this family are largely cultivated as food.

The roots of the *Dandelion* (*Leontodon taraxacum*), Fig. 5, may be roasted and ground as a substitute for coffee; they are equal to chicory for that purpose. The leaves may also be used as salad by those who do not object to their bitter flavour.

The *Bitter Vetch* or *Mouse Pea* (*Orobus tuberosus*) furnishes nutritive tubers, which have a sweet flavour somewhat like liquorice. In Holland and Belgium they are boiled till a fork will pass through them, dried slightly, roasted, and served up like chestnuts, which they resemble. In Breadalbane and Ross-shire an agreeable fermented liquor is sometimes made from them; the Highlanders are also said to be fond of chewing them as a substitute for tobacco. This plant is common on heaths, and has yellow and white butterfly-shaped blossoms. It has been cultivated to advantage.

The *Earth-nut* or *Pig-nut* (*Bunium bulbocastanum*) is to be found in pastures, and mostly in dry soils and elevated situations. The plant, above ground, somewhat resembles the carrot on a small scale; it throws up a stem about six inches high, and bears white flowers in umbels. The tuber, about the size of a chestnut, but irregular in shape, lies from four to six inches below the surface. It may be eaten raw or stewed.

The *Meadow Sweet* (*Spiræa filipendula*) is common in meadows where the soil inclines to peat or bog; its tubers are ground and made into bread in Sweden.

The *Early Purple Orchis* or *Sago* (*Orchis mascula*), Fig. 6, is said to be most abundant in the meadows of Oxfordshire and the Vale of Gloucester, but is common elsewhere. It prefers a dry and light soil, and throws up one or two narrow leaves and a flowerstalk of a foot high, surmounted by a spike of reddish purple flowers, in June or July. It has a slight but very agreeable odour. The tuber consists of remarkably nutritive farinaceous matter, an ounce of which, when dried and mixed with an ounce of animal jelly or portable soup, is said to be sufficient daily nutriment for an able-bodied man; it has, therefore, been recommended as a valuable ingredient in ships' stores for long voyages. It is also used to prevent milk turning sour, and for making the beverage called salop. The dried tubers for this latter purpose are mostly imported from Turkey, but are in no way superior to our native roots. The method of preparation is by digging up and washing the tuber, brushing off the brown skin, and placing the roots on tin plates in a bread oven of the ordinary temperature to roast, for from six to ten minutes; they are afterwards spread to dry gradually.

Silver Weed or Wild Tansy (*Potentilla anserina*) is a very common and sometimes pernicious weed, by waysides and in poor and exhausted pastures. The leaves have a silvery appearance, and the flower is yellow. The roots are oblong, and attain considerable size; when boiled they taste like parsnips. In Jura and Col they are much valued as food, and have in periods of scarcity been known to form the chief support of the people for months together, who have sometimes torn up their pastures merely for the purpose of obtaining these roots; Nature appears to have wisely ordained that this plant should flourish best in the most worthless soils.

Marsh Clown's All-heal (*Stachys palustris*), a common plant in moist, rich cornfields; on its creeping roots are formed, in summer, numerous tubers which abound in farinaceous matter; these have been obtained of a larger size by cultivation.

The *Common Comfrey* (*Symphytum officinale*), Fig. 7, has also been cultivated; both its stems and tubers are wholesome and nourishing; it grows naturally in moist places.

Among leguminous wild plants, edible, are:—

Wild Vetches (*Lathyrus vicia* and *Ervum*), Figs. 8, 9, 10, which are to be found in hedges, woods, and cornfields; their seeds may be used as food. Those of all the

varieties found in Britain are both wholesome and nourishing; they are most prolific in dry seasons.

The *Sea Pea* (*Pisum maritimum*), which grows among loose stones by the seashore. Its seeds have a bitterish taste, which might probably be removed by steeping and kiln-drying in the manner ordinary peas are prepared for splitting. In the great scarcity which prevailed in England in 1555 thousands of families are said to have been preserved by the use of these seeds.

COFFEE.

THE coffee-tree, of which there are many varieties, is a native of Africa. In a wild state it abounds on the rocky hills of Southern Abyssinia, where its value has been known from early times; it is also found wild in Liberia and some other parts of Northern and Central Africa. It is an evergreen, has glossy green leaves, a grey-coloured bark, and in a natural state attains a height of 15 or 20 feet; but when cultivated is rarely allowed to grow more than 5 or 6 feet high. It reaches maturity in from three to five years, and continues to bear for about twenty. Its flowers are white, and grow in thick clusters round the branches; they are succeeded by pulpy fruit, not unlike cherries, which first become red and afterwards deep crimson or purple, and which are sweet and palatable when ripe. In Arabia, where the finest coffees are produced, the fruit is allowed to fully ripen and fall naturally on mats spread under the trees to receive it; but in other countries, where the climate is not so favourable, it is usual to gather the fruit as soon as ripe. Two of the coffee-berries of commerce lie in the centre of each of these cherries, separated from the fleshy part and from each other by a membrane something like parchment. To free the berries from the useless parts in which they are enclosed, different methods are in different countries resorted to. In Ceylon the fleshy pulp is removed by a pulping machine; in South America it is washed away, after it has been steeped till it becomes soft in running water; in Java the fruit is dried, till the husk and parchment can be broken off at one operation. In those countries where the pulp is first removed, the berries are dried and the parchment then broken off in a mill or by beating, and, after winnowing, are fit for market.

Our own knowledge of coffee as a drink came to us from the East. Among the Asiatic nations, the Persians were the first to make use of it, and they derived it from the Abyssinians in the ninth century. From Persia it travelled through Arabia and Turkey to Europe. In England it has only been known about 200 years. At the close of the last century, no coffees were to be found in the London market except the Arabian (Mocha), the Jamaica, and the Grenada. Since that time, however, the seats of coffee cultivation have greatly changed. Grenada coffee is now unknown, and Arabia and the West Indies export but a trifling quantity. Our chief supplies are from South America and the East Indies, and, to a considerable extent, from Brazil and Ceylon.

Coffee is composed of its peculiar principle—caffeine, a large quantity of fat and volatile oil, woody fibre, vegetable acid, and some other substances. Caffeine is almost identical in its composition and properties with theine, the peculiar principle of tea, and is, like it, valuable from its easy assimilation with the bile: one pound of tea, however, contains as much of this substance as two of coffee, which may account for the greater popularity of the former among the poorer classes. To the volatile oil are due the aroma and exhilarating power of coffee. When the raw berry is examined under the microscope, it shows a number of angular cells, each of which contains one or more globule of the oil. This in the process of roasting is diffused through the whole berry, and partially dissipated, almost wholly so, if the roasting is carried too far. A certain amount of roasting is, however, necessary, to enable the essential oil to be set at liberty when the berry is infused. Some remarks on coffee-roasting have already been made in a previous number (see page 295, vol. i.). The woody fibre in raw coffee amounts to thirty-four per cent., and is of no value whatever.

In the former article, directions were given for coffee-making, but in this place the reason may be stated why coffee should be simply infused and not boiled. If the latter course be adopted, the volatile oil is to a great extent dissipated and lost, and little is gained by boiling except colouring matter, bitter extractive, and acid. To make an invigorating cup, more coffee will be required for boiling than infusion—boiling cannot, therefore, be more economical. The practice of boiling is, however, countenanced by the greatest of coffee-drinkers—the Turks; but it must be remembered that they are accustomed to roast the berry much more slightly than ourselves, and to bruise rather than grind it, and that consequently mere infusion would not succeed with their coffees as it does with those prepared by our method.

In warm countries alone is coffee wholesome if drunk to a great extent; in cold, it should only be taken in moderation, and by many wholly avoided. Some persons who are subject to headaches, find themselves relieved by giving up coffee. With some it causes disorders of the digestive organs, acidity of the stomach, or nervous affections if used freely. It has, on the other hand, various medicinal qualities. It is prescribed for whooping cough, spasmodic diseases attended with palpitation of the heart, chronic diarrhœa, and croup: it is also used as an antidote to narcotic poisons, after they have been removed from the stomach. Whether the practice of taking a cup of strong coffee shortly after dinner is beneficial or otherwise, is wholly dependent on the organisation of the individual. Liebig, speaking on the subject in his "Letters on Chemistry," says: "Persons of weak or sensitive organs will perceive, if they attend to it, that a cup of strong coffee after dinner instantly checks digestion. It is only when the absorption or removal of it has taken place that relief is felt. For strong digestions, which are not sufficiently delicate re-agents to detect such effects, coffee after eating serves from the same cause to moderate the activity of the stomach, exalted beyond a certain limit by wine and spices. Tea has not the same power of checking digestion." The popular idea that coffee after dinner aids digestion appears, therefore, to be wholly groundless.

Coffee berries are said to ripen and improve when kept for a number of years. It has been asserted that the inferior South American samples will in ten years become equal to Mocha of three years old. Coffee is easily damaged by contact with articles which possess a strong smell. A whole cargo has been spoiled by a few bags of pepper, and it is not considered good to convey it in vessels which have been freighted with sugar.

Probably no substance used as food has been subjected to such wholesale adulteration as coffee. Although the consumption of an article sold under that name has constantly increased, the quantity of genuine coffee used in this country has, with some unimportant interruptions, steadily declined since 1847; as is shown by the revenue returns. The enormous difference between the coffee on which duty has been paid, and that sold to the public, has been made up by the admixture of worthless substitutes. Out of between twenty and thirty samples investigated by the "Lancet Commissioners," previous to their first report in 1851, only two were found pure, many of the others contained less than one half, and some scarcely any coffee whatever. The rubbish used for the purpose of adulteration was of various kinds. In consequence of the disclosures then made some temporary improvement took

place, and in a later *Lancet* report eleven samples out of forty-two were stated to be pure, and the adulteration of the remainder (except in two cases, one of which was with horse chestnuts and one with colouring matter) was with chicory only. Since that time the admixture of coffee and chicory, except when declared as such, has been made illegal, but unfortunately the Adulteration Acts are not respected as they ought to be.

From an examination of forty-seven samples, none of which were stated to contain chicory, but all sold as coffee, published in the *Food Journal*, it appears that sixteen only were fine and good, eleven were adulterated with chicory alone, and seventeen with that root mixed with other substances. None of the adulterated 1s. 4d. samples contained more than fifty per cent. of coffee, and some much less; while none of the 1s. samples contained more than twenty-five per cent., and many scarcely any at all.

HOME-MADE WINES.—III.

GOOSEBERRY CHAMPAGNE AND RAISIN WINE.

Gooseberry Champagne.—Provide 40 lbs. of full-grown but unripe gooseberries, of the Green Bath or any other kind, with little flavour; rub off the blossoms and stalks, pick out unsound or bruised berries, and separate the small ones by means of a sieve. Put the fruit into a 15 or 20-gallon tub and bruise it in small portions, so as to burst the berries without bruising the seeds. Pour upon them 4 gallons of water, carefully stir and squeeze them with the hands, until the juice and pulp are separated from the seeds and skins; in twelve or twenty-four hours strain the whole through a canvas bag, and pass through the fruit 1 gallon of fresh water. Next dissolve in the juice 30 lbs. of loaf sugar, and add water, if requisite, to make up the whole liquor to 11 gallons. Let it remain in the tub; cover it with a blanket, over which place a board, and let the temperature of the place wherein the tub is set be from 50° to 60° of the thermometer. In a day or two, according to the symptoms of fermentation, draw off the liquor into a 10-gallon cask to ferment, keeping it filled up near the bung-hole. When the fermentation becomes somewhat languid, drive in the bung, and bore a hole by its side, into which fit a wooden peg. In a few days loosen the peg, so that any air may escape; and when there appears no longer any, drive in the peg, or spile, tightly. The wine being thus made, it should be set in a cool cellar, and remain there until the end of December, when, to insure its fineness, it should be racked into a fresh cask, to clear from its first lees; or, should it then prove too sweet, instead of racking it, the fermentation should be renewed, by stirring up the lees, or by rolling the cask. Sometimes, if the wine be examined on a clear cold day in March, it will be found fine enough to bottle, without further trouble. If it be racked, it should be fined with isinglass.

Raisin Wine.—The following receipt is an improved method of making raisin wine, and is from the experience of Mr. Aikin, late Secretary to the Society of Arts. It is worth the space it occupies, from the well-known accuracy of the writer. Mr. Aikin had been for some years in the habit of making, for use in his own family, a light, dry raisin wine; and the following is the result of a series of his very careful experiments. He found that, with black currants and other of our native fruits, none of them are so well adapted to make light, dry wines as the better kind of raisins; a further advantage of employing this fruit being that the wine may be made at the season when the temperature is most favourable to the fermentation. The Muscatel raisins are preferred, and these are sold at a much cheaper rate than when Mr. Aikin made his experiments. The matter, whatever it be, which, in fermentation, converts a solution of sugar into vinous liquor, exists in raisins in sufficient quantity to change into wine a greater quantity of sugar than the fruit itself contains; also it is advantageous, both as to price and quantity, to add to the raisins from one-tenth to one-third of their weight of sugar; and it is advisable to use good loaf sugar. The raisins being picked, they are to be chopped finely with a mincing-knife, the stalks being put aside for a use to be mentioned hereafter. After several trials, Mr. Aikin found the best proportion to be 3 lbs. of raisins and 1 lb. of sugar to an ale gallon of water. The must is sometimes prepared by mashing, sometimes by maceration. For mashing, the chopped raisins being put into an open tub, or earthenware pan, pour on them hot water, in the proportion of about 1 quart to 4 lbs. of fruit; the water should not be heated higher than 120° of Fahrenheit's thermometer. The water and fruit being mixed after standing a quarter of an hour, the whole should be stirred by hand, taking care to break down all the lumps. The fruit should be placed on a sieve, over a tub, there to drain for a short time; the husks to be then lightly pressed by hand, and returned to the mash-tub. The second mash is made in the same manner as the first. The water for the third mash is put on at 150° or 160°, when the liquor is acidulous, having the flavour of the raisins, and but little sweetness. If an astringent wine is wanted, the last mash is prepared by pouring boiling water on the stalks in a separate tub, and in a quarter of an hour the liquor is poured on the husks, and in another quarter of an hour the liquor is put on the sieve, and the husks are well squeezed by hand. While the last mash is preparing, the liquor of the first three mashes is put into the fermenting-tun, and the sugar is dissolved in it. Then add as much of the last mash as is requisite—viz., 1 ale gallon of must to 3 lbs. of fruit and 1 lb. of sugar, the temperature of the must being about 70°. The fermentation will begin from twelve to thirty-six hours, according as it is treated. If the fermentation is languid, keep on the cover of the tun, and stir the scum daily into the liquor; if too rapid, take off the cover, and remove the scum as it rises. The liquor is now vinous, but sweet; and, after carefully skimming it, put it into glass carboys, containing 6 or 7 gallons, or into stoneware barrels of the same size. Insert in the bungs glass tubes, and on the second day pour into them about 1 inch of quicksilver, to exclude the air. The bungs are covered with a cement of wax and rosin. The wine ought to remain an entire summer in the barrel or carboy, in order that the fermentation may proceed so far as almost entirely to decompose the sugar; and as the usual times of wine-making are April and October, the wine made in the former month should be bottled about the end of September, or a week or two later, according to circumstances.

Mr. Aikin did not *fine* the wine, thinking that the *light, dry wine*, which it was his aim to produce, would be materially injured by being deprived of its tannin, through the action of isinglass. At the time of bottling, the wine had no very sensible flavour; but after remaining a year in bottle, a flavour resembling elder-flowers was strongly developed, mingled generally, in a slight degree, with that of prussic acid. As soon as the wine began to run turbid from the carboy, Mr. Aikin passed the remainder through a filter; but though he was careful that the wine, when bottled, should be clear, though not bright, there was always more or less flocculent matter deposited, which required the bottles to be set upright in the bin, and to be decanted with care. The wine, when first decanted, was often of a very pale yellow colour, especially if high-flavoured; but it at length acquired a tint like that of Bucellas, the prussic acid flavour at the same time disappearing. Sometimes, instead of mashing, as already described, Mr. Aikin produced a more simple maceration by mixing in the fermenting-tun the usual proportions of chopped raisins and sugar with cold water, and leaving the raisins in the liquor during the whole of the first

fermentation. The wine thus obtained was higher-coloured, but it had not the Frontignac or elder-flower flavour; and it is apt to get a less agreeable smatch from the husks of the raisins, though, sometimes, the method succeeds very well.

The manufacturers of British wines for sale, employ the first wort from malt to supply the deficiency of sugar in our native fruits. They find this substitute economical, especially when beer is made from the good remaining in the malt, after enough wort has been extracted for the wine.

British wines are not so weak as they are commonly thought to be. Raisin and other wines made in this country are often much stronger than the highest average of port, in consequence of the saccharine matter, or of added sugar, which is suffered to ferment into alcohol. Besides, British wines commonly contain a very large quantity of unfermented sugar, or they have become *pricked* in consequence of the production of a little vinegar, and hence are extremely apt to disorder the stomach.

COOKERY.—LIV.

DISHES SUITED FOR A COLD DINNER, OR ANY REPAST TO BE PARTAKEN OF AT AN UNCERTAIN HOUR.

A VERY agreeable entertainment is the unceremonious repast which, whether called a breakfast, a *déjeûner*, a collation, a luncheon, a meat-tea, or an early cold dinner, is the same in principle and composition. We will speak of it by the last of those names; because, practically, it *is* a dinner; no one thinks of dining after it.

A cold dinner is something of a very elastic nature. It may be partaken of at any hour, from eleven in the morning till six in the evening. It may contain as few things as you please, provided there be plenty to eat and drink, or it may be a collection of rarities got together from the uttermost ends of the world. And here, again, is the convenience of a principle which consists in the absence of rule. Although the meal is essentially a cold one, a few hot things may be interspersed, when season and opportunity invite their presence, not as the basis, but as the interludes, the *entremets*, in the general course of the banquet, of which there is no exact beginning and no defined end.

As with the eatables, so with the drinkables. Nothing is excluded; there may be anything and everything. In a cold dinner there are no set courses; all is placed on the table at once, with the exception of the few agreeable surprises that may appear in the shape of fried Epping sausages, kidneys, omelettes, and other dishes. Nothing is removed but empty dishes, which may or may not be replaced by dishes of the same size containing something else. But little waiting is required, and that little can be diminished by a couple of roomy dumb-waiters, placed at opposite corners of the table.

The meat-tea is often found to increase the comfort and convenience of family life—Why should not the unpretending cold dinner more frequently play a similar part in social intercourse?

As a cold collation is particularly suited to a large party, all of whom we suppose to be accommodated with seats round the board and not to stand up, let the table be of corresponding length and breadth. The fact of the decorations being permanent and the arrangements fixed allows you to cover the table with one, two, three, or more white table-cloths. To economise space and avoid removes, ornament as little as possible with things that do not contain or garnish eatables. Edifices of spun sugar and *nougat* or candied almonds are expensive, and the palate, at least, scarcely gets from them money's worth in return for what they cost. The same sum, it appears to us, may be more satisfactorily expended in other ways; for instance, on the finest and most beautiful fruit of the season. A welcome though old-fashioned centre-piece is a pyramid of glass salvers, laden with jellies, creams, syllabubs, custards, &c., and crowned with a trifle or tipsy cake. For each end of the table there are few better ornaments than large dishes of fruit of different kinds, artistically grouped and piled together, combined with flowers, foliage, and fern fronds. An inverted bowl makes a good support. Each group will be more effective for containing some one or two of the larger fruits, as melons, cocoa-nuts, specimen bunches of grapes, Duchesse d'Angoulême pears, &c. To succeed well in this requires both taste and practice. If you are rich in garden produce, you can make a trophy of your centre-piece, in Great Exhibition style, and place your piles of little toothsome articles at either end.

That done, your plates, knives and forks, spoons, and glasses, must take their places round the table. All the remaining space is claimed by the viands which constitute the meal. In giving a hot dinner, an important point is to proportion the quantity to the number of guests. A mountain of victuals is the height of vulgarity and bad taste. There is only one thing worse than putting too much upon a table—if it be worse—and that is too little. But in a cold dinner, the whole of it, or very nearly so, being presented at once, the weakness of making a show may be indulged in without incurring the blame of ostentatious profusion. Of course it increases the beauty and interest of the display, when there are the means of using articles of plate, china, and glass, which are in themselves curiosities or objects of art. We now proceed to note more than a sufficiency of dishes for the hospitable entertainer to choose from.

Fish.—Pickled or soused salmon. Potted mackerel, herring, eels, and sprats. Collared eel. Eels in savoury jelly, or with Tartar sauce. Dressed crab. Lobster opened, cracked, and divided. Shrimps and prawns. Pickled mussels and cockles. Cold fried smelts. Potted char or other fish. River trout boiled in vinegar and water. Carp or pike *au bleu—i.e.*, boiled in court-bouillon, left in it till cold, and then served whole. Eel patties. Oyster patties. Eel pie. Oyster pie. Cods' sounds and tongues pie. Mackerel pâté. Mayonnaise of lobster, salmon, or turbot. Lamprey or lampern pie. Conger pie. Caviare. Sardines, anchovies, or tunny, in oil.

Sweets and Sundries.—Baked custard. Lemon pudding. Blanc-mange. All sorts of jellies and syllabubs. Raspberry and currant, gooseberry, cherry, greengage, apricot, apple and quince pies—one Irishman wished his *apple* pie to be *all* quince. Boiled custards. Whipped cream and sponge cake. Marmalades and preserves, as preserved ginger. Mince pies. Open fruit tarts. Gaufres or wafers. Macaroons. Cocoa-nut cakes. Fruits crystallised in sugar. Cracker sweetmeats. Gruyère, or other choice cheese, under a bell-glass. Virgin honeycomb. Nuts of various kinds. Foreign fruits, as West India pines, dates, oranges, French plums, figs. Stewed prunes, pears, Normandy pippins, apples, and rice. Bullace or damson cheese. Cherry brandy. Plums in brandy.

Small Things.—Brawn. Potted meats. Mayonnaise of cold fowl. Sandwiches of various kinds; *pâté de foie gras* sandwiches are the most *distingués*, to be offered at the close of the repast. Pickles; sliced cucumber; olives; radishes. Salmagundi; various salads; cold kidney-beans or artichoke bottoms with oil and vinegar. Cream cheese. Sliced smoked Bologna, or other sausage. Terrines of truffled goose or duck's liver. Calf's head, pork, calf's liver, and other meat cheeses. Galantine of turkey or fowl, in slices. Hare pâté.

Large Joints.—Rolled ribs of beef boned. Roast sirloin. Quarter of lamb. Boiled leg of pork stuffed. Ham. Tongue. Hunters' beef. Salted round of beef. Yorkshire pie, containing turkey, goose, fowl, &c., boned. Roast turkey or fowl, carved, divided into portions, and covered

with savoury jelly gravy. Turkey, goose, or fowl, *en daube*, served whole, surrounded with the jelly in which they were stewed tender. Roast sucking-pig. Giblet pie. Wild fowl pie. Roast quarter of kid. Pickled boar's head.

In summer time cold soup is eaten in Russia; but English palates require further training to render them capable of appreciating it. Hot soup may be served from the sideboard; or, instead of soup, oysters can be given, handed round from the sideboard, and followed by plates of bread and butter; or there may be both soup and oysters; in which case the oysters are served the first of the two. The sideboard is also the place for all the varieties of malt liquor; for champagne until it is opened; and also for liqueurs to be placed on the table when coffee is brought in, which is usually served in the dining-room, at table, and not in the drawing-room—as at a cold dinner the ladies seldom retire, but all quit the table together at the close of the entertainment, announced by the coffee and liqueurs. The presence of black bottles on the table is a matter of local custom. Port, sherry, Madeira, and the white wines which replace or supplement the latter, are here always presented in decanters. On the Continent, although the lighter ordinary wines, often drawn from the cask, are allowed to appear in decanters, it would be utter heresy to decant fine wines or curious old samples with which the host regales his guests. These must be presented in the state in which they are taken from the bin, and not wiped or dusted in any way. The more mouldy and grimy they are, the more their appearance is usually admired. Old Burgundy, and other wines which deposit a crust or lees and must not be shaken, are slipped, in the cellar, into a flat basket or cradle, without changing their horizontal position, uncorked, sent round, and never set upright till they are emptied. To decant such wines would be considered an act of barbarism; the cradle is a warrant of their age and excellence. Many hotel-keepers will not accord the honours of the cradle to wine below a certain price.

MANAGEMENT OF JAMS, JELLIES, PRESERVED FRUITS, FRUIT-ACIDS, ETC.

Green Gooseberry Jam.—Cut the stalks and tops from the fruit; weigh it, and bruise it slightly; boil for six or seven minutes, keeping it well turned during the time; then, to every 3 pounds of gooseberries, add 2½ pounds of lump sugar, powdered, and boil quickly for three-quarters of an hour. While boiling, it must be constantly stirred, and the scum carefully removed.

Vegetable Marrow Marmalade.—Take out the seeds of vegetable marrows and slice them as fine as possible. To every pound add ⅞ of a pound of lump sugar and the peel of a lemon, shred very fine. Boil for an hour and a half. Then remove the white, and cut the lemons in thin slices; mix them in the marmalade, and boil altogether for a quarter of an hour. Before being put to the marrows, the lemon-peel should be boiled in a little water, which must be poured away afterwards.

Preserved Siberian Crabs (Whole, for Dessert).—Gather your Siberian crabs with long stalks. Make a thin syrup, and, when it is nearly cold, put in the fruit; set it over a slow fire, and as soon as it is just hot remove it. Next day make it gently hot again in the same manner; the third day just simmer and scald it through, and when cold put it in glasses or pots. If the syrup is not thick enough, drain it from the fruit, and boil it again. If the crabs are wished to look particularly fine, the very whitest sugar should be used, and a new syrup should be made in which to keep them.

Apricots, cherries, egg, and other fine kinds of plums may be preserved whole for dessert in the same way.

Bottled Fruits (Currants, Gooseberries, &c.).—For these it is necessary to have wide-mouthed bottles; those with glass stoppers are best, and they must be perfectly clean and dry. The fruit must be cut carefully from the stalks with a pair of scissors, and dropped gently into the bottles. Set the bottles in a cool oven, and allow them to simmer till the skins of the fruit appear ready to crack; or they may be placed in a copper or pan, in cold water, and afterwards simmered. The corks should be placed in the bottles before they are boiled, and as soon as they are removed from the fire, the tops should be made air-tight with rosin or wax. Green or ripe gooseberries, currants, or damsons are good, preserved in this manner.

Plum Jelly, and Cheese from the same Fruit.—Fill large jars with plums, and set them in an oven from which the bread has been drawn several hours, and let them remain there all night; or place the jars in cold water, and boil gently till the plums have yielded all their juice. Strain out the juice, weigh it, and boil it rapidly for twenty-five minutes. Put 3 pounds of lump sugar, broken small, to every 4 pounds of juice, stir till the sugar is dissolved, then continue to boil them quickly together for ten minutes. This makes the jelly. For the cheese, skin and stone the plums from which the juice has been poured; weigh, and boil them for an hour and a quarter. Then to every 3 pounds of fruit add 1 pound of powdered lump sugar; boil for another half hour, and press into shallow pans or moulds.

Quince Jelly.—Take ripe quinces; pare, quarter, core, and weigh them; throw them, as they are done, into the water in which they are to be boiled, of which one pint must be allowed to each pound of fruit. Simmer them gently until they are a little broken; then strain the juice, weigh it, and boil it quickly for twenty minutes. Next put into each pound of juice 12 ounces of powdered lump sugar, and stir it in till it is dissolved. Boil for another twenty minutes, or until the juice jellies strongly in falling from the skimmer.

Green Gooseberry Jelly.—To each pound of fruit pour three-quarters of a pint of water, and simmer till the gooseberries are well broken; turn the whole into a jelly-bag, and drain out the juice; weigh it, and boil rapidly for fifteen minutes; draw it from the fire, and stir in, until dissolved, an equal weight of powdered lump sugar; boil the whole for twenty minutes; clear off the scum; and pour into glasses or moulds.

Currant or Strawberry Syrup.—Dissolve in 3 quarts of cold water 2½ ounces of tartaric acid, and pour it upon 6 quarts of currants or strawberries. Let it stand all night; then strain it through a sieve, and be careful not to break the fruit, or the syrup will not be clear. To every pint of syrup, cold, mix in 1½ pounds of powdered and sifted lump sugar and ¼ of an ounce of isinglass; bottle, and keep it in a cool place. The corks should be tied down and covered with wax or rosin.

THE HOUSE.—IX.

THE STORE-ROOM (*continued from Vol. II., p. 348*).

ALTHOUGH not in such general use as mushroom catchup, walnut catchup forms the basis of several excellent store sauces, and is both easy and inexpensive to make at home. The best time for the work is when walnuts first appear in the markets, generally about September or October. Half a sieve of walnut shells, costing but little beyond the carriage home, will yield sufficient catchup for a small family's use for twelve months. The shells should be laid in a deep pan, and freely sprinkled with salt. The pan should be tilted on one side to let the juice escape. In about six or eight days the shells will begin to feel pulpy. They should then be mashed and beaten daily, until sufficient juice is extracted, adding more salt if necessary. As soon as any liquor has drained from the shells, it should be set aside in a dry jug. Half a sieve of walnut-shells generally yields about a quart of juice. When the full quantity is extracted, the catchup,

spice, &c., should be placed over a clear, slow fire, when it should be allowed to boil for twenty minutes, all the scum being cleared off as it rises. A quarter of a pound of shalots, one clove of garlic chopped fine, 1 oz. of cloves, 2 oz. of peppercorns, and ½ oz. of allspice should be added to the walnut juice, and two wineglasses of soy, when it is put over the fire to boil. The liquor having been strained, it should be left to settle before bottling. If the walnut shells be not very tender, the addition of about a quart of water to every half-sieve of walnuts will greatly assist in extracting the juice. The latter addition, however, will entail longer time in boiling, and double the quantity of spice, to ensure the catchup keeping any length of time. Walnut catchup is a most excellent addition to stewed steaks, kidneys, &c.

The mode of steeping freshly gathered soup-herbs in walnut and mushroom catchup, is much to be recommended to those who are liable to be called upon to produce a basin of soup, or a tureen of sauce, at short notice. Many hours' cookery may be saved by having such ingredients at hand. Any catchup left from a previous season may be utilised with good results by this plan. The method to adopt is to saturate soup-herbs—such as knotted marjoram, basil, or thyme, separately or in the desired proportions—in sufficient catchup to well cover the leaves stripped from their stalks. Having lain for twelve hours or longer, the catchup and herbs should be boiled for twenty minutes, and afterwards left to settle before being put into bottles. In most brown soups, lemon thyme, majoram, and winter savory are indispensable. These flavourings should, therefore, be always at hand in the store-room. Basil is equally needed for making mock turtle; but, as the latter herb is likely to predominate over all others, preparations of basil should be carefully used, and kept apart from the rest.

Amongst the sauces which are a host of flavourings in themselves, and consequently most fitted for storing, may be named tomato sauce. With well-made tomato sauce to fall back upon, a housekeeper need never be at a loss to supply a savoury and elegant dish out of the most homely materials. As a relish to plain cold mutton, tomato sauce surpasses every other kind of sauce, and as a finish to elaborate ragoûts it is equally invaluable. Neither can hares be successfully jugged without the aid of tomato sauce. With its use as an accompaniment to fried sweetbreads every *bon-vivant* is acquainted. The following receipt is one which has been successfully used in the writer's household for many years:—Choose half-a-sieve of bright-red tomatoes—English-grown tomatoes are the best, and may be had in the markets from the beginning of September till the middle of October. The price varies slightly according to the supply; but from 2s. 6d. to 3s. 6d. per half-sieve is about the usual price. The tomatoes should be put into a pan and set into a cool oven, to simmer in their own liquor till tender. They should then be put into a large saucepan over a slow fire, with the addition of ½ lb. of garlic, 1 lb. of shalots, a small handful of salt, 6 green capsicums, and 1 dozen of fine chilies, together with half a teaspoonful of cayenne pepper, ½ oz. of allspice, and ½ oz. of cloves; a good teaspoonful of strong curry-powder and the peel of half a lemon heighten the flavour. When these ingredients have all been boiled till the tomatoes are tender, the pan should be removed from the fire and the tomatoes passed through a sieve; every portion of the tomatoes should be reduced to a pulp; the pulp should then be set on the fire, to boil again for a few minutes, with the addition of ½ pint of chili vinegar; when cold, the sauce should be bottled in wide-mouthed bottles, in the ordinary way. If well made, the sauce will keep good for a year or two, but in order to secure this result great care must be used to have all the utensils employed perfectly dry.

Lemon flavourings are very much esteemed by some people, and the piquancy which lemon-juice gives can hardly be dispensed with in attempts at good cookery. The easiest way to obtain lemon-juice at all seasons for ordinary use is by keeping a bottle of the prepared juice in the store-room. A good-sized bottle may be purchased for a shilling at all chemists' shops, and is the cheapest and easiest method of supplying the needed flavour to stews, curries, &c. The prepared lemon-juice is certainly somewhat deficient in flavour, but that defect may be remedied by saturating a little fresh-cut lemon-peel in the juice.

Lemon pickle is a very useful store-pickle, and, to those who like the flavour of lemon, is a valuable article of diet during the winter months, when acid fruits are scarce. The following receipt is the most simple for . . . lemons:—About the middle of October, or beginning of November, choose a quarter of a hundred of bright-looking lemons, as nearly as possible the same size; slit the rinds from one end of the lemon to the other in three places, taking care not to penetrate to the juice; rub into the slits as much dried table salt as the gashes will hold; then arrange the lemons, end-wise, in an earthenware pan, to drain; turn the lemons daily for six days; at the end of the above time have ready sufficient vinegar to cover the lemons; to each quart of vinegar allow ½ oz. of cloves, 2 oz. of black pepper, 1 oz. of allspice, 2 oz. of nutmegs cut into chips, 1 oz. of bruised ginger, 2 oz. of mustard-seed, and two or three cloves of sliced garlic; the above vinegar and spice should be just suffered to come to a boil, and when cold should be poured over the lemons, and the pickle tied down in jars; at the expiration of two or three months the spice, if desired, may be strained from the vinegar, and the lemons divided preparatory to use. The longer lemon pickle is kept before using the more mellow it becomes, and after a year or two it affords an excellent addition to every kind of mixed pickle.

Some finely-chopped lemon pickle in a boat of melted butter is, with many, a favourite addition to boiled fowls, veal, and other kinds of white meat. In all fricassées lemon pickle will be found useful.

Pickled nasturtiums are an excellent substitute for capers, and are considered more digestible. Gather the nasturtium pods in dry weather, and sprinkle them for a day or two with salt; after they have been drained from the salt, wipe them and put them into a bottle containing vinegar flavoured with spice, in the proportion of 1 oz. of salt to every pint of vinegar, twelve peppercorns, and six allspice. This pickle is better if not eaten till twelve months after it is made.

The value of certain seeds should not be overlooked as winter stores when fresh herbs are scarce. An ounce or two of celery and parsley seed should be in every store-room for the purpose of soup-making. A good substitute for parsley and butter may be made by boiling parsley seed in water, in order to impart the flavour. When strained, the liquor should receive the addition of some finely-chopped winter spinach, to give the required greenness.

A jar of mixed mustard should always be kept ready for use. To a ½ lb. of mustard add 1½ oz. of salt, and mix with water that has been boiled but is not quite hot. Mustard prepared in the above way is not only more relishing, but is more economical than when mixed in small quantities at a time. The French flavour mustard with a variety of herbs and essences, of which the most esteemed are tarragon vinegar, garlic, burnet, basil, and fine herbs. Mustard may thus be made to supply the place of sauce, especially to cold meat.

Table salt is now sold very cheaply in packets, but if not easily obtainable, salt dried in an oven and afterwards rolled with a common stone bottle will be found equally good.

With plenty of herbs, pickles, jams, and sauces at command, a store-room needs only the addition of a well-selected assortment of preserved meats to afford an appetising meal independent of all unpropitious circumstances, which in the best regulated households, are apt at times to reduce dinner arrangements to an awkward uncertainty. A very ample knowledge of the various preserved meats sold in tins induces the writer to recommend the following as the most profitable to keep in store for household use. Firstly, beef and bouilli, which is simply the pot-au-feu of French cookery, with portions of meat in the soup. To make the dish more completely suitable to English taste, some boiled dumplings should be added, together with additional pepper and salt. Better food on a winter's day, without any trouble in the preparation, need not be desired. Cold boiled beef sold in tins is also excellent. The surplus fat, if there should happen to be any, makes first-rate crust for savoury pies and puddings. The Australian boiled mutton is also a very successful preparation, but is preferable in winter rather than in summer-time, on account of the fat being in cold weather firmer, and consequently more palatable. With regard to the soups sold in tins, they ought rather to be regarded as the bases of good soups, than finished soups. All more or less require the addition of fresh herbs, or preparations which give piquancy to the dish. For instance, the mock turtle requires a considerable amount of basil, fried onions, and catchup. The gravy soup needs fresh carrots and turnips; and the oxtail all the above, with the addition of winter savory. The intelligent use of the above herbs, combined with a good thickening of flour and butter, wine, and lemon-juice or chili vinegar, enables a housekeeper to set a good extempore tureen of soup on the table at comparatively little cost and trouble. If she will be at the pains to make force-meat balls, where such accompaniments are customary, the illusion will be more complete.

Liebig's extract of meat is too widely known to need introduction in this place. As a means of converting ordinary stock into good soup at little expense the extract is very useful, and ought to be kept in every store-room. As a broth for invalids the extract of meat generally requires the customary flavour which freshly-shred onions and carrots, &c., alone can impart. These, however, are easily added, and, in the opinion of good authorities, it is beyond a doubt that the amount of nourishment derivable from half a teaspoonful of Liebig's extract of meat dissolved in a cup of water is much greater than that from twice the quantity of beef-tea made by an uncertain process.

A very successful preparation of mixed dried vegetables may be had at the best oilmen's, which, used in conjunction with Liebig's extract, enhances the value of the food for the general purposes of diet, and makes it decidedly more palatable. The vegetables alluded to consist of finely-shred carrot, celery, parsley, turnip, onion, &c., which figure so pleasingly in the spring soups of good confectioners.

Another article of food sold in tins deserves to be generally patronised, viz., condensed milk. The expense of these tins and the small space they occupy in a store-room are said to be quite disproportionate to their utility. Any irregularity in delivering milk—and this cannot always be provided against—may readily be counteracted by having the condensed milk in the house. And for purposes of diet the milk is of the highest merit. Each tin represents five pints of pure milk, at the cost of one shilling. Children, as a general rule, seem to like the preserved milk, and thrive upon it. For use in puddings and cookery, however, the condensed milk does not appear to answer equally well, owing, it may be presumed, to the fact that it is customary to preserve the milk by the use of maple sugar.

HOUSEHOLD AMUSEMENTS.—XXI.

MISCELLANEOUS GAMES.

THE following may be considered some of the best intellectual amusements for the fireside. The first, whilst being amusing if well played, may hold a place as a mental occupation of a high order; and the second, if it has no higher recommendation, causes unlimited laughter.

Substantives.—An excellent game for an intelligent circle, and one which affords delightful intellectual recreation for persons of ready brains, but which calls for too much mental exertion for children and the dull. A half-sheet of note-paper and two small slips of the same material are handed to each, and every player writes on one slip a question, and on the other a substantive. The more absurd both question and substantive can be made, the better will be the sport. One of the company, who acts as "editor," then collects all the questions in some receptacle—say a vase—and the substantives in another, the whole being folded up in one way, which has been previously agreed on. This is to ensure the distribution being made wholly at hap-hazard, which, in the long run, always produces better fun than if the "editor" makes selections. The vases are well shaken, and the "editor," without looking at them or knowing by whom they are written, hands a question and substantive to each person, who has to write a verse on the note-paper in which the question is answered, and the substantive introduced. When written, the verses are folded up with the question and substantive inside, and placed in one of the vases. As soon as all are collected, the "editor" shakes them up, opens one by one, and reads aloud, first a question, then the substantive, and lastly the verse belonging, as in this example:—

"The question has been asked, 'Will you come into the garden, Maud?' and the substantive suggested is 'tadpole.' A poet, eminent for his observation of Nature, gives me the following answer:—

"'When the stagnant pool's black face is hid
By its mantle of duck-weed green;
When the sedge and the rush grow thick and lush,
When the frog and the newt are seen;
When none of that musical low-lived race
That dwell in its slime are dumb,—
Then Maud, with her cold and clear-cut face,
Will into the garden come,
In its muddy lair a *tadpole* to snare,
To stock her a-qua-ri-um!'"

It is well to select an "editor" with a quick ear for versification, and able to help out a limping line at sight, as that talent will frequently be called into requisition while reading the verses.

Adjectives.—This, in some respects, slightly resembles "The Newspaper" (page 238, vol. i.). One of the party writes a story in which it is usual to include the names of all present, and any nonsense about them which may most readily occur to the writer, blanks being left before all the substantives. When the story is written, the narrator calls upon all the players in rotation to supply adjectives, which are inserted in the blanks in the order in which they are received. The story is read aloud as soon as all the blanks are filled, and the ridiculous combinations formed by the insertions of adjectives at hazard affords much amusement. The story might run somewhat in this manner:—

"On an (expensive) evening in the (genteel) month of December, the (venomous) Mrs. Smith invited a (political) party to her (ghastly) residence in the (volcanic) region of Camberwell. The first to arrive were the (seraphic) Dr. Pettitoes and his (carnivorous) spouse, who were shortly followed by the (glaring) Mr. Walker, and the (acid) Miss Jones, &c."

In this manner the game may be continued till the ingenuity of the narrator or the company is exhausted.

HOUSEHOLD DECORATIVE ART.—XXXIV.

THE ART AND APPLICATION OF ILLUMINATING.

(*Continued from p. 75.*)

Preparing Paper or Vellum.—The paper or vellum on which the work has to be done, should first be strained. This is accomplished by laying the sheet flat upon the drawing-board, taking a *clean* sponge dipped in *clean* water and equally damping both sides. A few minutes, more or less, according to the thickness and density of the material, must be allowed for the sheet to expand. Glue or strong paste must be applied to the margin of the sheet, on a space about a quarter of an inch wide, by which it must then be fixed down to the board. Care must be taken that no wrinkles be left, and it must be smoothed till all disappear. If the operation be properly performed, the sheet, when dry, will be beautifully even. In the case of vellum, only the reverse side should be wetted; and, if paste be used to fix it, stronger will be necessary than for paper. When the vellum is dry, rub it over lightly with a piece of cotton-wool dipped in dry powdered whitening or chalk, which must afterwards be carefully dusted off. The use of this is to remove any indications of grease which may be left on the surface.

ILLUMINATED DESIGN FOR A DOORWAY

Preparatory Sketch.—Unless the work is intended to be a literal copy, it will be necessary, before beginning, to make a sketch to the intended size, on a separate piece of paper, from which tracings can afterwards be taken. The proposed colours need not be indicated on this cartoon, but the general arrangement of the colours should be resolved upon previous to beginning.

Lettering.—Before entering upon the actual processes of illumination, a few words must be given to the subject of lettering. Most illuminations will require to be accompanied by text, which is generally written in simple black-letter, and it is essential to the beauty of the whole work that the characters should be correct in form, well spaced, and neatly executed. Sets of alphabets proper for this purpose can be purchased for a few pence, and with one of these the beginner would do well to furnish himself. The student should ask for Old English or Church Text.

Spaces must be first set out for the borders, or, if no border is used, for the margin, as well as for the initial letters, and other ornamented capitals. Lines must then be set off with the blacklead pencil and T-square, at the proper distances apart for the letter-lines and intervening spaces. The widths of the latter must vary according to circumstances, but generally, to ensure a compact and beautiful appearance to the lettering, they should be kept as near together as is possible without involving confusion; about the height of a short letter apart would be a good ordinary rule. This would of course admit of all the lines being ruled at equal distances.

As in an ordinary sketch it is scarcely to be expected that the text will be written in accurately, it will sometimes be difficult to ascertain the exact places of all the ornamental capitals, but the student need not greatly trouble himself on account of blacklead lines crossing these, as the latter will be hidden by the colouring.

When, as in illuminating a book a number of pages have to be ruled in a uniform manner, time may be saved and coincidence insured, by pricking through several sheets at the end of the lines with a sharp point; the dots made will serve as guides for the ruler.

For black letters a deep glossy and permanent ink may be made by mixing lampblack, Indian ink, and gum-water. For executing the thick strokes of the letters a quill pen should be used, and a fine-pointed steel pen for the hairstrokes. As any want of neatness in writing will destroy the whole effect of the illumination, however good, the student will do well to take great pains to make himself master of this branch of his art; he should therefore practice it frequently on pieces of waste paper before he attempts it on the actual work, and learn to form the letters with regularity, to keep them quite perpendicular, and to preserve perfect equality in the spaces between them. He will find that the more closely he can keep his text together, both as regards the individual letters, the words composing the lines, and the lines themselves, the better will be the effect of this part of the illumination.

Tracing.—In order to trace the decorative parts of the work, which must now be done, the tracing-paper must be laid over the sketch, and all the lines of the initials, borders, &c., marked upon it with a sharp blacklead pencil. For transferring this to the actual paper or vellum, it will be well to have a sheet of thin unglazed paper, upon one side of which a little powdered vermilion has been rubbed, and afterwards dusted off, which must be done in such a manner as to take off all the *loose* powder, or red marks will be left on the work from the pressure of the fingers. The tracing must be placed over the exact spot the initial, &c., will occupy, and fixed at the top with drawing-pins, and the transfer-paper, with its red side downwards, slipped under it. The lines must then be gone over with a sharp point of wood or ivory. When this is done, and the tracing and transfer-papers are removed, the whole design will appear faintly but clearly indicated by red lines.

Outlining.—Over the red lines of the tracing, black lines must now be drawn with a fine-pointed steel pen. For such scrollwork or ornament as is intended to be in black alone, without colour, the same strong ink should be used which is recommended for the text; but in those portions which are to be covered with metal, or colour, a fainter

Indian ink will suffice. Great care should be taken in this process, since much of the beauty of the work will depend on the freedom and correctness of the outlines.

Gilding.—The first step in actual illumination will be to cover the spaces intended for gold or other metals. On account of the greater ease with which it can be applied, the beginner is recommended to use gold-paper for all large surfaces; he will be able to dispense with it afterwards in favour of legitimate gilding, as he becomes more accustomed to his work. The pieces of paper must be very accurately fitted to their places, and their edges concealed by black or colour, as the circumstances may require. Smaller spaces and, indeed, in the hands of the more skilled student, *all* spaces will have to be gilt. The easiest method of gilding is with shell-gold. A drop or two of clean water must be poured into the shell to dissolve the gold, which must be laid on in the same manner as colour, but freely, and with the point of the pencil. Before laying this on, it will be advisable to go over the space to be gilt with water-gold mat-size, and, when this is dry, to breathe upon it, and paint in the gold; this will make the latter adhere more readily, and will give a better surface.

Leaf-gold, though more difficult of application, produces a finer effect, and is therefore preferred by the skilful illuminator. Water-gold mat-size must be diluted with water, and laid evenly over the ground, and when dry, a second coat laid on; to ensure a smooth surface, this should be rubbed over, when dry, with a burnisher: it must then be slightly damped, and the leaf-gold laid on. That this may be done conveniently, it will be well to cut off from the book of gold a portion somewhat larger than the surface to be gilt. Leaf-gold, when bought, is in little books, of which the ordinary size is three inches square, and which contain twenty-five leaves, the leaves of gold being separated by the paper leaves. In cutting these books it will be well not to begin at the margin, as this would probably disorder the gold, but to make an incision with a sharp penknife at the centre of the line, and to cut from it both ways. For the same reason the whole thickness of the book must be cut through at once. Of course the student will not use all this gold at one time; he will do well, therefore, to have at hand a paper-weight, to keep it from being displaced, and at the same time protect it from dust.

When all is ready, take up one of the slips of paper, to which the gold-leaf will slightly adhere, in consequence of the pressure of the knife in cutting, and, taking care that it is not displaced by the breath, lay it smoothly over the surface prepared with the size; gently remove the slip of paper, and the gold will be found to adhere to the sized ground. A little dabber should previously be prepared of cotton-wool, covered with soft wash-leather; with this the gold-leaf must be pressed down until it is perfectly flat, and if any cracks or faults appear in the gold-leaf, wet first the end of a tracing-point with the lips, and tear off from a leaf of gold a piece just large enough, and lay it over the crack; this must be pressed down as before described. If the gold-size should have become too dry to admit of the leaf adhering readily, it may be made to do so by slightly breathing on the place.

When perfectly dry, the superfluous gold must be lightly dusted off. Some waste of gold must always occur, as the leaf laid on must invariably be larger than the surface to be covered; even in gilding a fine line, the slip of gold to be applied should not be narrower than a quarter of an inch, or there will be danger of not covering it in places; and mending is never desirable, if it can be avoided. The gold brushed off may be saved in a box, if there is any probability of any quantity being used, as the waste can be sold, or applied to various uses. The old illuminators were accustomed to grind this with honey, and use it as we do shell-gold.

Burnishing.—Before burnishing is attempted, the gilding must be allowed to become *almost perfectly* dry. If too wet, portions of the gold will be rubbed off, of which there will also be a danger if it be thoroughly dry. Before doing it, it will generally be necessary that five or six hours elapse, when a trial should be made on a corner, and the work proceeded with, if the burnisher passes over the surface freely. It will be safer to place a piece of thin, well-glazed writing-paper over the gilding, and on this, with the flat burnisher, to rub briskly and firmly. If the gold does not shine well at first, breathe upon it slightly and burnish it again. It is essential that there be no dust or other foreign substance, either upon the gold, paper, or burnisher; for this reason, it will be well to pass over it a soft, dry, camel-hair pencil, to see that the paper is perfectly clean, and frequently to wipe the burnisher carefully. Shell-gold is burnished in precisely the same manner, but will not look so brilliant.

The surface of gilding may sometimes be varied by diaper lines or dots. These are made by pressure with the pointed burnisher.

The "illuminating body," previously spoken of, is used to give greater hardness and richness of colour to gold. If made use of, it must be applied before the size.

Additional richness is sometimes given by gilding on a raised surface, which is attained by covering the space to be gilt with "raising-ground." In the middle ages a mixture of redlead and white of egg, or similar materials, was used for this purpose, but the modern illuminator will do well to employ that sold as "prepared raising-ground." On this raised surface the sizing and gilding are performed, in the same manner as on the flat; but if the ground be too absorbent, it may be gone over, before sizing, with diluted white of egg. Burnishing on the raised ground must be done in one direction only.

The directions for applying gold will serve equally for other metals.

HOUSEHOLD LAW.—XIV.

LANDLORD AND TENANT (*continued from p.* 55).

Excessive Distress is where a landlord has distrained on more goods and chattels than was necessary to cover the amount of the rent due and the costs of the proceedings. To be excessive, however, a distress must be obviously disproportioned to the rent. When a landlord is about to make a distress he is not bound to calculate very nicely the value of the property seized, but he must take care that some proportion is kept between that and the sum for which he is entitled to take it, and in doing so is only bound to exercise a reasonable and honest discretion. Again, in this case, the damage must be substantial, and if so, an action will lie, whereby the tenant may recover damages to the amount of the value of his goods, less the amount of rent due. If, however, there is only one chattel to distrain, the distress will not be excessive, whatever its value may be.

Illegal Distress.—An illegal distress will occur where there is no right to distrain at all—viz., if there be no tenancy between the two parties; if there be a tenancy but no specified rent; if the landlord's title had expired before the rent became due; if no rent was in arrear; or if the landlord's title to it was barred by the Statute of Limitations, &c. If any of these contingencies take place, the tenant may sue the landlord for the amount of the receipt of the distress, or may bring an action of trespass, and recover double the value of the goods sold. But the usual remedy for a tenant against his landlord for an illegal distress is by a form of action called *replevin*, by which the plaintiff can recover from the defendant the goods distrained, and, moreover, damages for the loss and inconvenience he may have experienced.

Taxes and Rates.—Having thus noticed what remedies a tenant has against his landlord, we come to another extremely important point—viz., Taxes and Rates. In the absence of any proviso to the contrary, a tenant is bound to pay all rates and taxes, such as the Assessed Taxes, House Duties, Parochial Rates, but not the Land Tax nor the Property Tax. These two last the landlord is bound to pay; they are in reality chargeable on the tenant, but he is entitled to deduct them from his rent. As Poor Rates are said not to be a tax upon the land, but a personal charge in respect of the occupation of land, they are paid by the tenant and not by the landlord, and this rule, with some few exceptions, is held good. For the Sewers Rate, either the landlord or the tenant may be assessed by the commissioners. The owners of dwelling-houses where the annual rent is under £10 are made liable to the payment of Water Rates, instead of the occupiers. Paving, Lighting, and Cleansing Rates are generally cast upon the occupiers by private or local Acts of Parliament. Church Rates, County, and Highway Rates are also charged upon the occupier.* The tenant may make himself liable for taxes payable by the landlord by agreement, but it is said that a promise or covenant by the tenant to pay the Property Tax is void. A covenant to pay rent free and clear of all taxes binds the tenant to pay every tax and imposition except Property Tax. An incoming tenant is liable for all taxes, &c., due from the previous tenant and left unpaid by him, except the Poor, Church, and County Rates. Each tenant, the outgoing and the incoming, must pay his share of these in proportion to the time he has occupied the premises. The incoming tenant has a remedy against the outgoing for the recovery of sums expended in payment of arrears of taxes left unsettled by the latter, but he has no remedy against the landlord.

Waste and Repair.—We have in a preceding paper noticed that waste is of two kinds—voluntary and permissive; voluntary waste being an act of commission, such as pulling down a wall; permissive waste an act of omission, such as allowing a wall to fall through want of proper repair. It is voluntary waste to throw open new doors or windows, or otherwise alter the form of the premises, or to turn an ordinary dwelling-house into a shop. If there be no agreement, the law implies that the tenement will be treated in a tenant-like manner, that is, that no voluntary damage will be done to the premises. We have also stated that by the term *keep in tenantable repair* the law implies that the premises shall be put in good repair and so kept; therefore, if the tenant, who is bound to keep premises in good repair, finds when he takes them, that they are in very bad repair from age or neglect, he must not keep or leave them in such a state, but is required to put them in as good a state of repair as is commensurate with their age and the class of buildings to which they belong. Tenants for years are bound, in absence of a special agreement on the subject, to do substantial and lasting repairs, and ordinary or tenantable repairs. The former are repairs to the main walls, beams, girders, &c., whilst the latter are simply repairs to windows, doors, &c. Tenants, however, from year to year, are liable only for voluntary waste, but are bound to prevent obvious waste and decay to the premises; they are not liable for injuries arising from accidental wear and tear, and are not bound to make substantial or general repairs. The landlord is not bound to do any repairs whatever, and even if there be an agreement to repair, non-fulfilment of it does not release the tenant from the payment of rent, nor free him from observance of the other conditions; all he can do is to bring an action for breach of contract against his landlord.

Notice to Quit.—In the case of premises being let for a fixed term, no notice to quit is necessary. Where the tenancy is from year to year, one party should give the other half a year's notice to quit, expiring at that period of the year when the tenancy commenced. The death of either party does not put the tenancy at an end, but the proper representative of the deceased must give or receive a formal notice to quit. The notice to quit may be either a verbal or a written one, unless it be agreed that it should be in writing. A landlord, however, will not be able to claim double rent, as he can do if the tenant holds over after he has been given notice to quit, unless the notice be in writing; so that it is safer and better in all cases that the notice should be in writing. A notice to quit, to be valid, must contain a fair description of the premises, so as to avoid uncertainty. The notice need not name the day on which the tenant is to quit; but if a day be mentioned, the exact day the tenancy commenced ought to be stated. When that period is doubtful, it is better to give a general notice to quit at the end of the year of tenancy, which shall expire after one half-year from the time of the service of the notice; for instance, if the tenancy commenced on the 1st of July, 1877, and notice is given on the 25th day of December, 1881, it may demand possession on the 24th of June, 1882, or at the end of the year of tenancy which shall expire next after the end of one half-year from the time of service of the notice, *i.e.*, the 1st of July, 1882. The notice will not be valid if it gives the tenant an option to quit or continue.

It is not necessary that a notice to quit should be directed to the man in possession, if proved to have been delivered to him at the proper time. If a notice to quit is directed to a tenant by a wrong Christian name, and he keeps and does not send it back, he will have waived the misdirection, and the notice will be perfectly valid. A notice put under the door of a tenant's house will not be sufficient, unless it be proved that it came into the tenant's hands. It is not sufficient to leave a notice with a servant unless it is perfectly clear that the nature of the notice was explained to the servant, or that it reached the tenant's hands. No notice is necessary where the tenant disclaims—*i.e.*, denies his landlord's title, or asserts that some one else is his landlord, such an act being tantamount to a forfeiture of his lease.

POISONOUS PLANTS OF WILD OR COMMON GROWTH.

OUR native flora is more free from violently poisonous plants than those of most countries, still it contains a greater number which may prove fatal if partaken of than is generally supposed; and our indigenous catalogue has been increased by many foreign species, originally introduced for medicinal or ornamental purposes, which have now become common. The following list is far from containing all those which are hurtful, but it comprises most of the more common and dangerous kinds, whether indigenous or imported. In most cases Nature appears to have provided against the improper use of these her productions (for they have proper uses, nearly all of them being valuable as medicines) by giving them acrid, bitter, or disagreeable tastes. But this does not always hold good, and parents should warn their children against tasting any leaves or berries with which they are not well acquainted.

The *Wild Parsley*, or *Water Dropwort* (*Œnanthe crocata*), will, if taken in quantity, produce a fatal lockjaw. It grows on the banks of rivers or ditches, and throws up a flowerstalk about two feet high of a yellowish red colour; the blossom, which is produced in June or July, is not unlike that of celery. Many serious instances of poisoning by the roots of this plant are on record. During our last war with France eleven French prisoners at Pembroke partook of it: two died, and the remainder were saved with difficulty. More recently seventeen convicts

at Woolwich ate it, of whom four died. In other cases where speedy help has not been at hand its effects have been still more fatal. The goat alone is able to eat its leaves. In cutaneous diseases the juice is useful taken internally, at first in very small doses, which are afterwards increased.


WATER HEMLOCK.

The *Water Hemlock*, or *Cowbane* (*Cicuta virosa*), also produces tetanic convulsions, and commonly death on the third day. It grows on the borders of pools and rivers, and much resembles the common hemlock, but has not, like it, a spotted stem, nor has it the same nauseous smell; but in this latter respect is more like parsley or smallage. It is used for ulcers, both internally and externally.

The *Common* or *Larger Celandine* (*Chelidonium majus*) yields an orange-coloured juice very acrimonious and poisonous. It grows under trees, hedges, and in other waste places, and flowers with a yellow blossom, from May to September. The juice applied externally cures such diseases as warts, ringworms, and itch, and is used diluted with milk to remove opaque spots from the eyes.

The *Common Meadow Saffron* (*Colchicum autumnale*) is frequently to be met with in meadows in autumn in most parts of Great Britain: the blossom very much resembles the garden crocus in form, and is purple, or sometimes white in colour. Both the


COMMON HEMLOCK.


FOOL'S PARSLEY.

bulb and upper part are violent poisons, which act on the stomach and bowels. As a medicine it is useful in dropsy, gout, and rheumatism. The leaves and roots of the daffodil, narcissus, and other plants of this class are also poisonous, though in a somewhat less degree.

All the above are classed as *bitter poisons*, and the proper antidotes for them are acids, astringents, wine, spirits, and spices.

The *Wolf's-banes* (*Aconitum napellus* and *A. lycoctonum*) are well known in our gardens, though they are not natives of England; but they have been long naturalised among us, having been introduced by Gerard, the celebrated herbalist, at the close of the sixteenth century. The stems rise from two to three feet high, with blue or yellow flowers; the *A. napellus* has roots resembling little turnips. Wolf's-bane is accounted the most violent of vegetable poisons, one drachm of the root is said to kill a man; even inhaling the odour of the flowers by the nostrils has been known to cause swooning, fits, and loss of sight for two days. The number of deaths on record from its effects is very large. The root when first chewed has an acrid taste; a stupor, tremor, and sense of chilliness speedily comes on, followed by sickness, convulsions, delirium, violent purging, and cold sweats; usually ending in death. The old herbalists had a superstition that a certain mouse fed on the roots of wolf's-bane, and should be eaten as an antidote. But Master Antonius Guanerius, of Pavia, tells us that in his opinion it is a fly which feeds on the leaves, and not a mouse, that should be taken—probably the two remedies would be equally efficacious. Various plants belonging to the aconite class are natives of Britain, and may be met with in most parts of the island: they are all more or less poisonous. The chief use of wolf's-bane in medicine is for rheumatism.

The *Bane-berry* (*Actæa spicata*).—The leaves of this plant somewhat resemble those of the elder.

The *Sumach* (*Rhus toxicodendron*).—All parts of this tree are poisonous, but not—in the variety commonly cultivated in England—to the same virulent extent as in some others of the family.

These are *acrid* poisons, and require very powerful

astringents, such as bark; the stomach afterwards to be restored with milk, fat broth, and similar diet.

Deadly Nightshade (*Atropa belladonna*) grows with branching stems. The first leaves are often a foot long and five inches broad. It produces large, pendent, bell-shaped flowers, of a brownish purple colour, in June or July, which are succeeded in September by beautiful shining black berries, larger than cherries. The whole plant is covered with fine down, and is more or less tinged with purple. All parts, and especially the berries, are poisonous. On account of this quality its first Latin name has been given, after Atropos, one of the Fates. It is said to be called belladonna (a fine lady) because visions of beautiful women float before the disturbed imaginations of those who have been poisoned with it. The juice of the berries applied to the eye has the effect of dilating the pupil, and ladies sometimes resort to this injurious method of increasing their personal attractions.

DEADLY NIGHTSHADE.

It is related by Buchanan, the Scottish historian, that after a truce had been completed with Sweeno, the treacherous Scots mixed nightshade-juice with the provisions they had undertaken to supply, and destroyed the Danish army while stupefied by it. When this poison has been taken, strong emetics and the stomach-pump should be resorted to, and vinegar and water administered afterwards. Medicinally it is used in cancers, and to allay local pains and swellings.

Woody Nightshade (*Solanum Dulcamara*) by no means resembles deadly nightshade in its growth, being a climbing plant, which spreads over bushes and hedges. It is exceedingly common, and bears a purple blossom with a yellow centre. The berries are not unlike red currants, and may easily be mistaken by children for that fruit. They have, when chewed, first a bitter and then a sweet taste; their effect is, to excite vomiting, purging, and convulsions. The attractive appearance of these berries, and the frequency with which they occur, render them most dangerous to children.

Garden Nightshade (*Solanum nigrum*) grows about dunghills and rubbish. It has a stalk about a foot high, flowers somewhat like those of the potato, and a black-looking, round berry. A powerful narcotic poison is contained in both fruit and leaves.

Fool's Parsley, or *Lesser Hemlock* (*Æthusa cynapium*), is a common weed, and closely resembles the common parsley, for which it has frequently been mistaken. It is, however, darker in colour, slightly different in shape, and the leaves are not curled, as are those of parsley. When eaten, it occasions vomiting. A large dose of brandy is considered a good remedy.

The *Thorn Apple* (*Datura stramonium*) is a native of America, but has been naturalised in Britain for two centuries. It is found on dunghills and among rubbish; its height is about two feet and the flowers are white and large. In smell it somewhat resembles the poppy, and it has a bitterish taste. All parts of the plant are highly narcotic and poisonous, and speedy death has resulted from eating the seeds. The root and stem are cut up and smoked for asthma.

Henbane (*Hyoscyamus niger*) grows wild among rubbish, or by roadsides. This plant is about two feet high; the leaves are of a sea-green, and the blossoms of a dingy yellow colour. The whole plant is poisonous, and causes convulsions and delirium. In medicine it is used for much the same purposes as opium.

The *Wild Lettuce* (*Lactuca virosa*) is supposed to be the parent of the cultivated varieties, but is poisonous. From its milky juice an opium has been prepared little inferior to that of the poppy.

Smallage (*Apium graveolens*), the native wild celery of Britain, is, like the last, believed to be the stock from which the garden-plant is derived, and is, like it, poisonous. It is frequent by ditches near the sea, and flowers in August with a greenish blossom.

The eight preceding plants are *stupefying* poisons, and must be treated with emetics and vegetable acids.

The *Common Hemlock* (*Conium maculatum*) is, in favourable situations, a most handsome plant; the stalk rises to six feet in height, and sometimes more. It is hollow, jointed, and thickly spotted with brown spots. The leaves and flowers resemble those of the common parsley in shape, but the former are darker and more

shiny. When taken it produces a sensation of great anxiety, vomiting, convulsions, stupor, madness, and very frequently death.

Foxglove (*Digitalis purpurea*) is well known by its beautiful pyramidal spike of bell-shaped purple or white flowers. It grows by roadsides and hedges, in light, dry soils, and its great beauty has caused it to be commonly cultivated in gardens. It flowers in June and July. The leaves are a violent narcotic poison, but are useful in medicine for a variety of purposes.

The *Bear's-foot* (*Helleborus fœtidus*), well known in gardens, though good as a vermifuge and in chest diseases, is a violent poison; as are also the

Water Fig-wort (*Scrophularia aquatica*), which grows in watery places, has a bitter taste and a rank smell, like the elder; and the

Savin Tree (*Juniperus sabina*), though this is a powerful stimulant when used medicinally.

For these *fœtid poisons* the antidotes are ether, wine, or acids.

Common or *White Briony* (*Bryonia dioica*).—This beautiful plant is well known as climbing over hedges and bushes, and is most remarkable for the rapidity and luxuriance of its growth. The roots attain a vast size, and Gerard speaks of having seen one which weighed half a hundredweight, and was as big as a child a year old. It was from briony roots that the fictitious mandrakes were formed, with which the quacks of a former age deluded the vulgar. Their practice was to remove the soil from the root of a flourishing briony plant, taking care not to disturb the bottom fibres, and to fix round it a mould, like those used by plaster figure-makers, of the human shape. The earth was then replaced, and in a single summer the root would grow so as to completely fill the mould. All parts of these plants are poisonous to men and animals, though goats are said to eat the leaves.

Spurge (*Euphorbia*).—Most of the annuals of this class are poisonous.

Mercury (*Mercurialis perennis* and *M. annua*).—These English plants grow in woods; when dried they turn blue. They cannot be eaten by any animal, and must not be confounded with English mercury (wild spinach or Good King Henry), which is edible.

White Hellebore (*Veratrum album*) was one of the plants introduced by Gerard. It was in great repute among the ancients as a cure for melancholy madness. That disease is so much more inveterate among ourselves that hellebore is no longer found to have the slightest effect upon it. For this poison a strong infusion of nut-galls has been recommended.

The four last-mentioned plants are *drastic poisons*, and are to be treated with acids, alkalies, and astringents.

ODDS AND ENDS.

To prepare Emery-cloth and Paper.—These articles are easily made by applying a thin coat of glue with a brush to the surface of paper or thin cotton cloth, and then sprinkling them over with powdered emery. Emery-cloth and paper are usually sold in shops of six degrees of coarseness, according to the fineness of the emery of which it is made; the finest emery-powder employed for the purpose having passed through a sieve containing ninety meshes to the square inch, and the coarsest through one of only thirty meshes in the same space. The emery-cloth and paper manufactured by Messrs. Oakey and Sons, Blackfriars Road, are excellent examples of quality. These materials clean better when a little oil is applied, but the surface of the metal on which they are used is left dull. They are sometimes employed wrapped around a piece of stick, in cases where it is wished to rub the corners and inequalities of any article. Sometimes pieces of wood are prepared for this purpose by coating them with glue, and then applying to them the powdered emery. A good knife-board for cleaning rusty knives may thus be made of fine emery-powder glued on a piece of wood of the proper form and size. But it must be used with care, and not too often, as it will wear away the steel too fast. Emery composition, for rusty articles, is prepared by sprinkling emery into melting bees'-wax. An artificial grinding-stone, for steel articles, can be made, by making emery-powder into a paste with half the weight of Stourbridge clay, pressing it into shape in a mould, and then exposing the mass to a cherry-red heat. Emery-stone, thus prepared, grinds quickly, and wears away very slowly. Emery-powder may be obtained of various degrees of fineness, by mixing the powder in a jugful of water, and, after it has stood for a short time, pouring off the fluid into another vessel, taking care not to disturb the sediment that has fallen to the bottom; letting the liquid remain there for the same period, and then pouring it off again into a second jug, being still cautious not to pour off the emery that has fallen to the bottom; the process being continued until you have obtained the degree of fineness required. The coarsest powder will be found at the bottom of the first vessel, and the finest in the last.

Soapsuds for Manure.—Soapsuds, when applied to the ground, form an excellent manure, especially if poured over the manure heap.

Modelling-wax.—The composition used by medallists is prepared from bees'-wax and Venice turpentine, and is generally tinted with flake-white, or any colour that may be desired.

Lavender Water.—Take 1 pint of the finest spirits of wine, ½ ounce of best oil of lavender, ½ ounce of bergamot, one shilling's worth of musk; mix all together in a bottle, and shake it occasionally. The longer it is kept the better it becomes.

To Bronze Iron.—Bright iron, such as gun-barrels, may be bronzed by washing it over with a mixture of the solutions of sulphate of copper and chloride of antimony; the article being afterwards warmed, and a thin coat of lacquer applied.

To make Gutta-percha Tissue.—Very thin sheets of gutta-percha may be made by dissolving small pieces of that substance in benzole, and when the solution has deposited all the impurities that the gutta-percha may have contained, pouring it out over a large sheet of glass to dry. It forms a thin sheet or film of white tissue. It is of considerable strength, beautifully white, and capable of being tinted any colour. This tissue has been employed in Paris for the manufacture of artificial flowers.

Removing Ink-stains.—As furniture, books, papers, and other articles of value are liable to become disfigured by ink-stains, any information about the safest means of removing them is of value. Owing to the black colour of writing-ink depending upon the iron it contains, the usual method is to employ some dilute acid in which the iron is soluble, and this, dissolving out the iron, takes away the colour of the stain. Almost any acid will answer for this purpose, but it is of course necessary to employ those only that are not likely to injure the articles to which we apply them. A solution of oxalic acid may be used for this purpose, and answers very well. It has, however, the great disadvantage of being very poisonous, and thus requiring caution in its use. Citric acid and tartaric acid, which are quite harmless, are therefore to be preferred, especially as they may be used on the most delicate fabrics without any danger of injuring them. They may also be employed to remove marks of ink from books, as they do not injure printing-ink, into the composition of which iron does not enter. Lemon-juice, which contains citric acid, may also be used for the same purpose, but it does not succeed so well as the pure acid.

MINERAL WATERS.

THE nature of mineral waters, their uses and value, are subjects on which a great amount of ignorance and misapprehension prevails. Yet they are, to all who prize the blessing of health, of no small importance. The medicinal powers of natural mineral waters have stood the test of far longer experience than most of the drugs of our laboratories, and the majority of the spas of England and the Continent have been known, and their efficacy constantly proved, for nearly two thousand years. Nature would appear to be more skilful than the chemist in preparing her medicines, and where the doctor's prescriptions have failed, these frequently succeed in effecting the cure. This may, perhaps, be in some measure owing to our mineral springs containing ingredients unrecognised as yet by chemistry. Salts of iodine and bromine are but of recent discovery and use in medicines, yet, as a component part of certain mineral waters, they have been employed with success in the treatment of disease for centuries; and, in like manner, other remedies may still remain unknown except in the results which arise from drinking those waters in which they occur.

In one respect, some knowledge on this subject is of more importance than formerly to the general public. Till within our own time few persons were able to reap the benefits which arise from mineral waters, except those who could drink them at the springs. But at the present time, in consequence of our improved commercial arrangements and means of communication, they may be procured so closed up as to be as good as when fresh from the earth in distant places, and drank by the sufferer at his own home.

Mineral springs are formed by waters permeating through beds of various mineral substances, and dissolving and becoming charged with some portion of their salts. Most spring-waters contain some portion of earthy matter, but generally this is only the case to a slight degree, and they are not classed as mineral waters unless the salts are present in such quantities as to render them available for medicinal purposes. Many mineral waters also owe some part of their efficacy to the fact of their being at the same time warmer than ordinary water. This is especially the case where the waters are of such a nature as renders them valuable for bathing, as well as drinking. Few mineral waters are charged with one mineral substance only; generally, many kinds of salts are present in greater or less quantities in the same spring. Broadly, however, there are four principal substances, which give to the waters their distinct character and powers; these are:—iron, sulphur, carbonic acid gas, and salts, and from them the springs are classed as chalybeate, sulphureous, acidulous, and saline.

Chalybeate or *Ferruginous Water*, which is chiefly charged with iron, is only called such when that mineral is present in quantity, for most other mineral waters possess it to a slight extent. Pure chalybeate water is a distinct and most valuable tonic. Iron acts upon the system by augmenting the number of blood corpuscles, and it is said that these may be doubled in number by a course of chalybeate. Whenever there is a deficiency in the blood, which is often the case in the male sex, and yet more frequently in the female, drinking chalybeate water is the most simple and safe, as well as most certain means of restoring the sufferer to health and strength. These springs are common, both in England and on the Continent; some of the most famous are to be found at Spa and Harrogate. Chalybeate water contains a considerable quantity of carbonic acid gas, and this sits more easily upon weak stomachs than others. At Harrogate a valuable spring of this description has been discovered (the Alexandra Ferruginous Spa), the waters from which can be procured in London and other places, in bottles of convenient sizes. (It may here be remarked that almost all mineral waters can now be obtained in this way.) For those in whose constitutions iron is required, one half-pint bottle of Harrogate water taken half an hour before breakfast, and another at eleven o'clock, will be found of great benefit. The pure chalybeate is not so strong, and suits most constitutions, being charged with carbonic acid, the assimilation of the blood being thereby increased.

Sulphureous Waters are those which are impregnated with sulphuretted hydrogen. Many of the sulphureous springs, as those at Aix-la-Chapelle, Baden (near Vienna), Barrèges, and Eaux Chaudes, are thermal springs, which quality renders them more efficacious as baths; for waters of this description are applied both externally and internally. Sulphureous waters are of value in all that class of diseases for which sulphur or its components are prescribed in medicine, and act more effectually than that substance when applied in artificial forms. Their properties are stimulating, aperient, and diuretic. They are used in chronic diseases of the skin, and chronic rheumatism and gout, as also for derangements of the uterine functions; indeed, over the cutaneous and uterine systems they are supposed to possess a specific power. The stimulating effects of these waters render them unsuited to inflammatory and irritable constitutions. The thermal springs of Baiæ, so much frequented by the luxurious inhabitants of ancient Rome, are of this class, as are those of Neundorf, and the Old Well at Harrogate. The analysis of the water of the celebrated Old Sulphur Well proves that it holds a very large proportion of those salts which give it its distinctive character, and that the amount of these salts has actually increased, so that it is now presented to the world richer than ever in all those beneficial properties which have given health and vigour to thousands of suffering invalids. The discovery by Dr. Sheridan Muspratt, F.R.S., &c. &c., of the existence of the chloride of barium, has also added a new feature to this far-famed spring.

Acidulous or *Carbonated Waters* owe their qualities to the presence of carbonic acid gas, which gives them an acidulous taste and sparkling appearance. When breathed, this gas acts as a narcotic poison, and is fatal to man and other animals, but it is extremely wholesome to the digestive organs. Bubbles of carbonic acid gas rise in champagne or bottled ale, when those drinks are "up," and make them sparkling to the eye and fresh to the taste. Most spring-waters contain free carbonic acid, but in ordinary springs not more than 3 or 4 per cent. will be present. When from 30 to 60 inches of gas are found to the 100 inches of water, the acidulous spring is held to be rich, but some of the richest will have a much larger proportion; 100 or 200 is not an uncommon quantity, and the waters of St. Nectaire are said to contain as many as 400 cubic inches of gas to the 100 inches of water. Most springs of this class contain, in addition, carbonate or bicarbonate of soda; but the medicinal virtue of the water is owing to the carbonic acid, which acts chiefly on the digestive, venal, and nervous systems. Acidulated water is cooling, refreshing, and exhilarating; it relieves nausea, and augments and alters the venal secretions. It is good in indigestion, uterine affections, and dropsy, but the effects are transient. The celebrated Selters (commonly written Seltzer) water is of this class; in England we have only one rich acidulous spring—that of Ilkeston, near Nottingham.

The *Common Soda-water*, with which we are all so well acquainted, is artificial acidulous water; more properly it might be termed carbonic acid water, for, generally speaking, it does not contain soda. To make it, carbonic acid gas is generated by pouring sulphuric acid on chalk or whitening, and condensing it, by the pressure obtained from powerful machinery, in water. This is, in its simple

state, although less perfect than acidulous water, a valuable medicinal agent. It is an admirable drink to allay the thirst attending all feverish disorders; it relieves the sensation of sickness, and acts as a diuretic. It is also useful as checking any tendency to the formation of stone or gravel, and it forms an excellent vehicle in which to administer medicines, as it lessens and neutralises their nauseating qualities. The most convenient receptacle in which carbonic acid water can be kept in the sick-room (where it ought generally to be at hand) is the siphon-vessel, as from this the quantity required can be taken without injury to the remainder, which cannot be the case when it is contained in bottles. The Gazogene, of which there are various modifications, is an invention for the home manufacture of carbonic acid water, and is doubtless, in some one or other of its forms, familiar to many of our readers. It consists of two oval glasses, one above the other, with a passage between them, in which is a cock for drawing off the aërated liquor. In the lower glass is placed carbonate of soda and tartaric acid in powder, and the upper is filled with water. A small pipe descends from nearly the top of the upper glass to nearly the bottom of the lower, and through this a little water descends, which mixes with the powders, and produces gas. This ascends into the upper glass, and, as the volume of gas below increases, is forced by the pressure caused by it into the water. To prevent the glass being burst by the internal pressure, the Gazogene is usually encased in lattice-work.

When common soda-water (carbonic acid water) has a little soda added to it, it is known in commerce as double soda-water. Common soda-water forms the basis of most artificial mineral waters, which are made by adding to it various salts. Artificial mineral waters, to some extent, may be made to take the place of natural ones, but they are not of equal efficacy, as the basis on which they are manufactured is lowering, and not invigorating to the system. The iron-water is now taking the place of soda-water. It can be taken with either wines or spirits, and makes a most delicious beverage.

Saline Waters, which frequently contain small quantities of iron, sulphur, or carbonic acid gas, owe their activity to different kinds of salts with which they are chiefly charged.

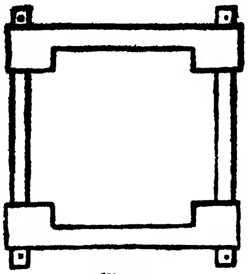
Bitter, purging, saline waters contain chiefly, as their active ingredients, soda or magnesia; in those of Cheltenham and Leamington, it is sulphate of soda, or Glauber's salt, which acts; and in those of Epsom and Scarborough it is sulphate of magnesia. The waters of Saidschutz, Seidlitz, Friedrichshall, and Kissingen, are in high repute among springs of this order, and by some authorities those of Cherry Rock, near Kingswood, Gloucestershire, and Purton Spa, near Swindon, Wilts, are not considered inferior to them. These waters are purgative and diuretic, and are useful when both kidneys and bowels need to be excited. They are good, in mild doses, in habitual constipation, determination of blood to the head, and in dropsical and liver complaints.

Brine Waters—of all in England the Droitwich springs are the best known—are highly charged with common salt. On the Continent are many famous springs of this order, as the hot springs of Wiesbaden and Baden-Baden; the tepid ones of Soden, Mondorf, and Canstadt; and the cold ones of Kissingen, and Homburg. Brine waters are made use of internally. In large doses they are emetic and purgative; and in small doses, alterative, and supposed to stimulate the absorbent system; but their chief use is as baths, in which form they are applied with excellent effect in gout, rheumatism, and scrofula.

In *Calcareous* or *Earthy Waters* sulphate and carbonate of lime predominate; well-known springs of this order upon the Continent are those of Wildungen, Leuk, Lucca, and Pisa, and in England those of Bath and Buxton. When taken internally, these waters are considered to be stimulating. Those of Wildungen are excellent as a diuretic, and are considered good to check the formation of stone or gravel. As baths, the warm springs of Lucca, Pisa, Bath, and Buxton are much celebrated for the cure of gout, rheumatism, and diseases of the skin. For their efficacy in relieving these diseases, our own thermal springs of Harrogate, Bath, and Buxton have enjoyed such a reputation as has given them, through various associations, a poetical and romantic, as well as historic interest. The Bath waters were in such high favour during the last century that they became the resort, throughout the season, of all the fashionable world of England; and almost all the novelists of that age, in describing contemporary life, make Bath partially the scene of their stories. But the reputation of its waters is of much more ancient date. Even during the Roman occupancy of Britain, Bath was a favourite and fashionable watering-place, and tradition carries back its renown still further, to the remote, and it may be fabulous, period of English history, which is chronicled by Nennius and Geoffrey of Monmouth, when the descendants of the Trojan Brute were kings of Britain. Bladud, we are told, a prince of this time, being afflicted with a leprous disease, was driven by his people from his throne, and compelled for a subsistence to keep swine in the woods which grew in that part of the country where Bath was afterwards built. Here he observed that when his pigs were diseased in their skins they rolled in the mud, caused by certain warm springs which arose there, and that by doing so they were cured. It occurred to him to try the same remedy upon himself, and by means of it he was restored to health and his dominions; and thus the Bath waters were discovered. Buxton also was known to and frequented by the Roman rulers of Britain, and it is rendered interesting by the fact that Mary, Queen of Scots, sought relief from its waters when she was attacked by rheumatism while a prisoner in this country. Bath waters taken internally—and as baths—are held to be good in chronic diseases requiring gentle continued stimulus; and Buxton water is drunk for the same kind of complaints, as also for stone and disordered digestion.

Alkaline Waters are characterised by sulphate and bicarbonate of soda. Springs of this order occur at Ems, Teplitz, Carlsbad, and Marienbad; and in England at Harrogate, Malvern, and Ilkeston. In cases of habitual constipation, induced by sedentary occupations, they are of great value, as their effects are more permanent than those of strong purgatives. They act also on the urinary organs, and are good in gout, dyspepsia, &c. Ems enjoys a very high reputation for the efficacy of its waters in certain uterine affections. The Vichy and Fachingen waters, which, in addition to containing bicarbonate of soda, are highly impregnated with carbonic acid gas, are useful in certain forms of indigestion, in jaundice, in removing stone and gravel, in gout, and in chronic catarrh. The demand for all mineral waters has largely increased since they have become better known to the public, and it is beyond all question that they are of peculiar efficacy in certain disorders.

Most waters should be drunk before breakfast, at intervals of a quarter of an hour between each tumblerful, moderate exercise being taken in the intervals. Where bathing is used, it should generally be between breakfast and dinner, and never soon after a full meal; the proper time for remaining in the bath varies at the different spas. In many cases it is unnecessary to go through what is termed a complete course, as only the sulphur and magnesia are required in cases of scrofula, cutaneous eruptions, gout, rheumatism, neuralgia, &c. One great advantage arising from the sale of the Harrogate mineral waters in bottles is, that invalids can enjoy all the benefits at home—a special boon to those who are afflicted during the winter months.



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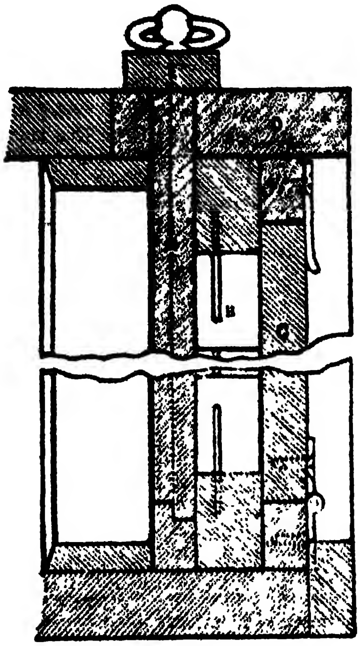

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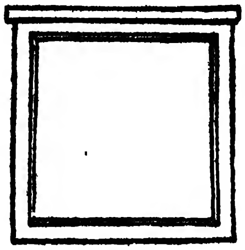

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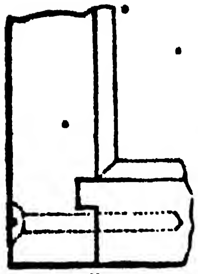

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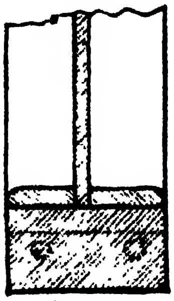

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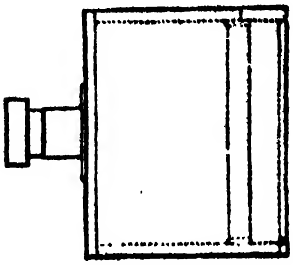

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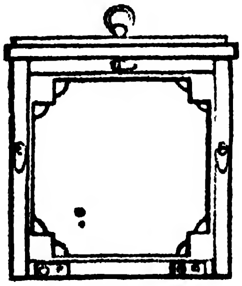


Fig. 8.

Fig. 1.

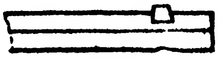
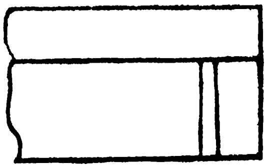


Fig. 2.



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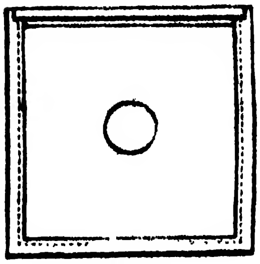

Fig. 5.

HOUSEHOLD AMUSEMENTS.—XXII.

PHOTOGRAPHY.

THERE are few arts boasting so large a number of amateur practitioners as photography does, and still fewer which for a proportionate amount of study and labour give results so charming or so valuable. To produce at will accurate portraits of those you love, or to carry away faithful pictures of scenes or objects associated with the memories of summer rambles and autumn pleasure-trips, will repay the student of photography a thousandfold for the time and labour he may bestow upon its acquisition as an art. There are, moreover, many ways in which photography may be rendered useful in business, as well as interesting and attractive as a mere household amusement.

Many are kept from the study of photography by the supposed costliness of the apparatus and materials; for, although cheap sets of apparatus are advertised, they are but too often found to be useless; and many are deterred from the pursuit by difficulties traceable rather to the use of such imperfect means than to any other cause. But the reader of this work, who has attained by the help of its lessons in carpentry some little skill in handling tools, need not be deterred by such considerations, inasmuch as the series of papers, of which this is the first, is intended to give such directions as will enable the young amateur, who has but a small capital at his command, to supply the deficiency by bringing to his aid mechanical ingenuity to enable him to work his way, and to contemplate with pleasure the products of his own hands, constructed at a fractional part of the price required by "the makers" for apparatus, perhaps very highly-finished, but not more useful.

How to make a Camera and Appurtenances.—Of the variety of cameras in general use we will not at present take notice, but turn to the one of which we give representations, and which we have designed with a special view to simplicity and utility, to its being easily made by the aid of a very few tools, which you must make up your mind to purchase. As you find the want of particular tools, do not hesitate to buy and get them from a tool-maker. Do not get the cheap things sold by ironmongers. With such tools your work cannot be turned out of hand in a creditable manner. The most useful of the appliances that will be needed is the "shooting-board;" and, that it may partly serve the purpose of a bench, should be constructed in the following manner:—A board, say 3 feet long, 9 inches wide, and 1 inch thick, and another piece the same length and thickness, and 6 inches wide; screw these together, as shown in Fig. 1. Then cut a groove about 3 inches from the end, made a little tapering, ¾ inch wide, and ½ inch deep, and fit into this a piece of hard wood; let it stand up about ¼ inch, to form a stop for the wood required to be planed, and also when shooting the edges (Figs. 2 and 3). To do this the plane is used on its side (as shown in Fig. 1); by this arrangement the edges are shot perfectly square. We will now proceed with our directions how to make a square quarter-

plate camera, that is to say, for plates 4½ by 3¼ inches, that can be placed in the dark slide either vertically or horizontally. In the first place, make a drawing representing correctly the size of your camera; but let the depth from the face of the front to the glass plate be determined by the focal length of your lens, after arranging the tube, so as to allow of one-third of the motion being pushed back and two-thirds forward. Having done this, procure a piece of seasoned pine, free from knots or shakes, not more than ⅜ inch thick; then cut off a piece of the required width, and long enough to make the body, and another piece for the front; plane them on both sides, taking care that they are of an equal thickness all over; then shoot one edge straight and gauge it to the proper width, and square off the sides and tops of the lengths required. The size of the body inside will be the length of the top and bottom, and the outside for the length of the sides; these should be cut a trifle long, to allow for cleaning off after the body is put together. The top must be rather more than the thickness of the dark slide narrower than the sides (as shown in Fig. 4). Then shoot the edges of the top and bottom, and proceed to glue and brad the body together with ⅜ inch brads, taking care that they are driven in straight; get the body perfectly square; let the glue get hard, and then clean off the front edges, and glue and brad on the front; next put on the fillets, which form the groove for the dark slide (as shown in Figs. 5 and 6). Let the glue be perfectly hard, and then proceed to clean off and finish with fine glass-paper.

To ensure having it perfectly light, tight, and to give it a more finished appearance, the sides may be covered with fine muslin in this manner:—Buy some shellac varnish, or make it by dissolving shellac in methylated spirit; take a piece of muslin large enough to go round the body, and commence by laying the shellac on the under side of the camera, beginning at the centre; next lay on the muslin, and rub it well with the edge of a piece of wood to remove all blisters. If the muslin does not take a good hold, take the brush with a little varnish and rub it well in a like manner, then proceed to do the side, and so on all round. Then where the muslin overlaps pass a sharp penknife, remove the two strips, bring the edges together, and the join will not be perceived. Cover the front in the same way. When the varnish is quite hard any roughness should be removed by fine glass-paper. Lay on with a camel-hair brush two or more coats of black japan until it presents a smooth surface, and, should it be desired to be very smooth, rub it down with a rag dipped in water and ground pumicestone; give it another coat of japan, and finish with one or two coats of thin shellac varnish laid on with a camel-hair brush. It will then have somewhat the appearance of papier-maché. Cut the hole for the lens exactly in the centre of the front, and a small one in the bottom for the screw which secures the camera to the stand, and the body of the camera is complete.

We now come to the "dark slide," which is a more difficult piece of work, but the simple mode of construction represented by full-size section, Fig. 9, will render the task easy, provided that proper care is taken in accurately preparing and putting together the various parts of which it is composed, and attending to the following instructions:—It will be observed that the frame is put together in three thicknesses, one forming the guide for the shutter, A, the middle frame for the plate-holder, B, and the outer frame for the door, C. Now cut off a piece of wood for the two outside frames 6½ inches long by 4½ inches wide, and plane it to an even thickness of ¼ inch. Shoot one edge and gauge it a little over the width required and rebate the edge to form the groove for the shutter, cut it off and prepare two more in like manner, and then cut off the four pieces to form the frame for the door.

For the middle frame forming the plate-holder cut off a piece of wood 6½ inches long by 3½ inches wide, and reduce it to an even thickness of $\frac{3}{16}$th inches, gauge off two pieces a little over ½ inch wide for the sides, and then the two pieces for the top and bottom; these will be a little more than 1 inch wide; cut a piece out of each 3$\frac{5}{16}$ inches long and ½ inch wide. Now take the two pieces which form the sides of the outside frame, and fix them by a brad at each end to a board 4½ inches apart; glue on to these the top and bottom piece of the middle frame 3$\frac{5}{16}$ inches apart, as shown in Figs. 7 and 8; then fit between these the two side pieces, let the glue get hard, and then remove it from the board, and fit in the top and bottom pieces of the outside frame. Next put on the rebated guides for the shutter, and screw both the outside and inside frames to the middle one with brass screws, this will render the whole perfectly strong, and have a neat appearance; then put on the top piece, or cap, D, through which the shutter slides, as shown in Fig. 9; then clean it off and fit it to the body, and put in the silver wire stops at the corners of the plate-holders.

The door and shutter, which have now to be prepared and fitted, will be simply flat pieces of mahogany. Fit and hang the door at the bottom with brass hinges; put on a brass button each side and one on the top to keep it down tight in the rebate, and fix on a piece of leather for the purpose of pulling it open.

Rebate and fit in the shutter, and put on a cap, E, which must fit tight on the top of the dark slide when the shutter is down, see Fig. 9. Fix on a piece of leather or a ring for drawing it up, and put on a stop along the bottom of the shutter to prevent its being drawn quite out, and the dark slide is finished.

To complete the camera we have now to make the focussing screen (see Fig. 6). To avoid the trouble of mitring or dovetailing the angles it will be better that they should be grooved and tongued and strengthened by two screws at each corner, see Figs. 10 and 11. Let the pieces forming the frame be ½ inch thick, and the width to fit the grooves made to receive the dark slide in the camera. Fit and glue on a small bead round the inside of the frame to form a rebate for the ground glass, see full-size sections, Figs. 10 and 11; the rough side of the glass must of course be towards the lens, and in fixing the glass care must be taken that the distance from the front of the camera coincides exactly with the distance to the face of the glass plate placed in the dark slide; similar beads must then be fitted round the other side of the glass to keep it in its place. This frame and the dark slide may be French polished, or japanned to match the body.

GARDENING.—XXXI.

MINT AND LAVENDER.

Mint.—There are several species of this plant cultivated, but those for general use are the peppermint and the spearmint. The former is easily distinguished from the latter, by its blackish or purple-coloured flowers, which appear in August and September. It is almost entirely cultivated for distillation. The spearmint rises from two to three feet high, with sessile lanceolate leaves, the whole plant is of a reddish green colour, and the flowers appear in August. It is cultivated for its leaves and tops, which are used in spring salads, and form an ingredient in soups; they are also employed to give flavour to certain dishes, as peas, young potatoes, &c. &c. Both species are propagated by division of the root, and by cuttings, whichever you like. The offsets from the root should be selected in the spring from established plants, and planted with a dibble in rows six inches asunder. They must be kept clear from weeds at all times, and at the end of the autumn any stems remaining must be cut away, and a little light earth spread

thinly over the beds. The young tops may be gathered for culinary purposes, and salads, any time after they are an inch high; and for winter store when they are beginning to flower, cutting the stems off close to the ground and placing them in the shade to dry, as the sun would evaporate their juices and spoil them; tie them up in bundles and put them by in bags for use. The roots of both sorts continue in good condition for several years, but when the stems begin to come weak and dwindling, it is better to make fresh plantations in time than to allow the beds to stand without bearing half a crop.

Lavender.—This is a hardy under-shrub, rising from two to four feet high, with hoary linear leaves, slightly rolled back on the edges; the flowers form terminating spikes, of a blue colour, and appear from July to September. Both leaves and flowers are powerfully aromatic. This plant is employed medicinally rather than in cookery. The spikes of these flowers are much esteemed, and particularly so by ladies, on account of their fragrance. They are also put into bags and placed among linens, to perfume them. There are two varieties, the narrow-leaved and the broad-leaved, both of which are equally good. It may be propagated either by cuttings or slips; and the soil should be poor, or of a dry gravelly nature, as on such the flowers have a powerful odour, as well as being more hardy, and consequently better able to stand the severity of winter. In a rich soil the plant is liable to be killed, to say nothing of its odour being far less powerful. It may be planted in a quarter to itself, in rows three feet asunder, and two feet distant from each other in the rows; or the plants may be set to form a hedgerow by the side of a walk, at eighteen inches apart, and they will form close heads, and when established will produce plenty of flowers in July and August, which must be gathered while in perfection, cutting the spikes off close to the stem.

DECORATIONS FOR CHRISTMAS AND OTHER SEASONS.

SOME of our readers will probably not share in the desire to adorn places of worship which actuates a large section of the religious community at Christmas-time and other seasons, but they may at least regard the subject as interesting and curious, and many of the designs are adapted for the decoration of home, in a manner appropriate to the season, without indicating any particular mode of religious thought, or involving points of doctrine or ceremony respecting which members of various communities might entertain different opinions.

There are many ways of decorating churches and houses at Christmas and other times of the year. One very effective and not tedious way is to make a frame the shape desired of laths nailed together, and stretch tightly and evenly over the frame some white calico. With a blue chalk pencil draw an outline of the text on the calico, and then over the letters sew single holly-leaves. Make a border of leaves. Bunches of yellow, red, and orange-coloured immortelles may be placed at the prominent parts of the letters, or worked into the borders.

Fig. 1 shows one of these frames, with the calico stretched on it and the text worked. Fig. 2 gives in detail the Sacred Name, showing how frames and leaves may be arranged. First of all, in making these texts, take the branches of holly, clip off all the leaves with a pair of old scissors, and drop them into a couple or three little baskets, so as to sort the sizes as they are cut off. Waste-paper baskets or old strawberry baskets are useful for the purpose. Take a No. 6 needle, and using dark green cotton, sew on leaf by leaf in the manner shown in detail in Fig. 3. The deep slanting shelf left by the thickness of the wall under many church windows can be very effectively decorated in this manner. The frames must be made to fit the windows. A couple of nails at the top of the slanting-place allow the frame to be hitched on them, and will keep it in place. Where the ledge of windows is flat, decorations would be lost. But they may very well be suspended along the galleries, in which case they should have frames of evergreen garlands, which on the window ledges are better dispensed with. It has a beautiful effect in many churches, to erect an evergreen screen before the communion table. This is particularly appropriate to those built for choral service, and which are provided with special stalls for the choristers. Most of the old churches were so built, and the seats—choral service not being retained in them—appropriated to members of the congregation. The screen is still suitable in such a case. Fig. 4 represents one of these screens. One side is shown covered with the holly, and the other exhibits the framework. To make the frame, first construct a square of laths the size of the aperture to be filled, and represented by A B C D, Fig. 4. Then place across the laths, E F and G H. Next make the trellis-work at the lower part. Place the upright laths to form the arches, at I. Next cross them with pieces of crinoline cane, or pliant boughs, in the way shown at J. The triple circles at the top, which are emblematic of the Trinity, are garlands made on pliant boughs, such as lilac-bushes afford, tacked at the bows marked K K K, and tied together in centre with string. A bunch of immortelles is placed in the centre of each. Festoon a garland from G to H, filling the spaces between the triple circles. If a wire is run into the garland it will stiffen it enough to enable it to be moulded to form. A cap-wire is useful, because the leaves can be sewn to it. But the garlands may be made on rope with a strong wire tied in with it. The upright laths of the arches are covered with green. Then form the garlands for the arches on wire or cane, and place them in a row over the top. The text is made on calico, stretched on a frame in the manner already described. It is placed in its position last of all, and a garland of leaves then carried round it as a frame. The trellis-work is previously covered with leaves. Fig. 4 indicates how the immortelles may be used. White, yellow, scarlet, and crimson are the colours to select. Do not mix them, but place bunches of each colour regularly arranged. If any members of the congregation sit behind the screen, the back should also be covered with leaves.

Mosaics of flowers are very beautiful, but tedious to make. A board of the right shape must be procured and covered about an inch thick with wet clay. The pattern is then set in it in immortelles, using the colours according to taste, and the ground filled up with white flowers. The immortelles, before using them, must have the stalks cut off to within three-quarters of an inch of the flower. They are set into the clay quite close. A coloured drawing of the design should first be made. If it is large and the clay likely to get dry before it is finished, part of the clay must be laid on and covered at a time, as fresco painting is done. The clay must be thoroughly dry and hard before the work is hung up, or it will drop off. Texts, devices, or shields may be emblazoned by these means.

Texts to suspend along the galleries, illuminated by hand, and illuminated shields to place in the centre of every arch where the church is built with them, or to decorate the pulpit, should first be executed in the usual way on cardboard. A frame of laths must then be made and covered with canvas or calico. It should be several inches larger every way than the drawing, which must be mounted in the centre by means of strong glue, and pressed flat till dry. Make garlands of evergreens, and attach them to the canvas margin, so as to frame the drawing. These drawings, if carefully laid by, and the garlands removed, will be useful for many succeeding

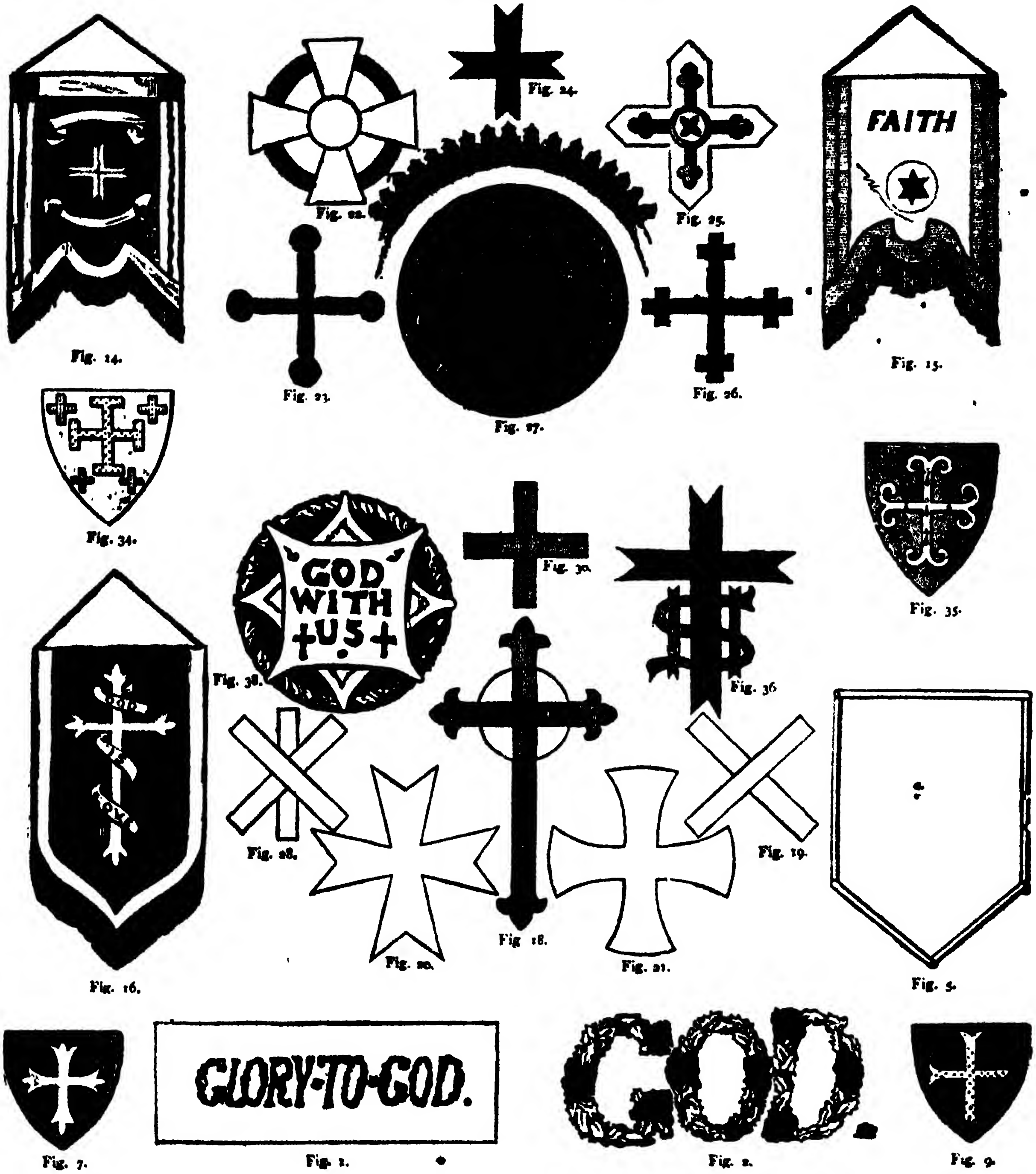

Fig. 14. Fig. 22. Fig. 24. Fig. 25. Fig. 15. Fig. 23. Fig. 27. Fig. 26. Fig. 34. Fig. 35. Fig. 38. Fig. 30. Fig. 36. Fig. 16. Fig. 28. Fig. 20. Fig. 18. Fig. 21. Fig. 19. Fig. 5. Fig. 7. Fig. 1. Fig. 2. Fig. 9.

years. If other churches had similar articles, and would exchange them, it would not be a bad plan. A lady, skilful as an artist, by employing her leisure during the year, might furnish many churches, on condition that they annually changed, so circulating their decorations. Shields might very well be executed in oil-colours. Fig. 5 gives a design for a shield of laths to be covered with canvas, and garlanded. The outline can be shaped and formed more artistically by the addition of the garland. Calico stretched on such a frame may be worked in device or text also with leaves, and garlanded. Fig. 6 is an ornamented shield.

Texts may also be made, and shields as well, with less trouble than drawings. For the texts, make the canvas frames, or merely take sheets of cardboard. Purchase blue, red, green, orange, and bright plum-coloured papers. Cover the cards or frames each with a different colour. On white paper draw very large the letters of the text to be illustrated. Draw smaller the same on coloured paper, drawing on the wrong side of the paper. Cut out these last letters. With gum fix them in the centre of the white ones. Cut out the whole and fix them on the coloured ground. Or merely cut out the letters, from coloured paper, and fix them on the white calico. Or fix gold and silver-paper letters on coloured grounds. Cut out the shield, either from thin wood, card, or millboard. Cover

Fig. 29.

Fig 17.

Fig 12.

Fig. 11.

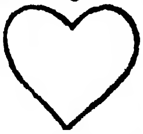

Fig. 13.

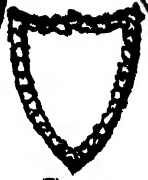

Fig. 10.

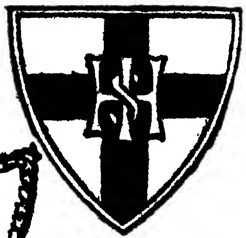

Fig. 8.

Fig. 31.

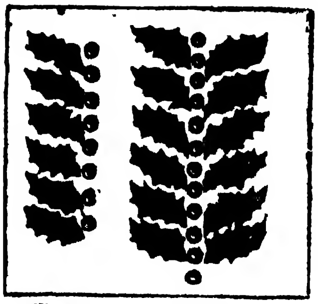

Fig. 31. Fig. 37.

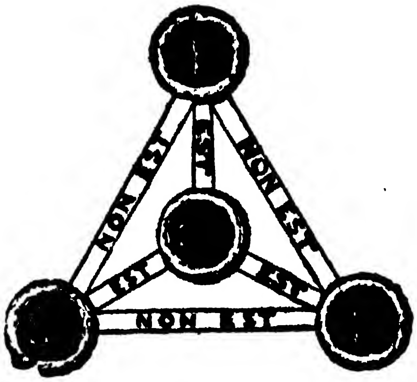

Fig. 32.

Fig. 6.

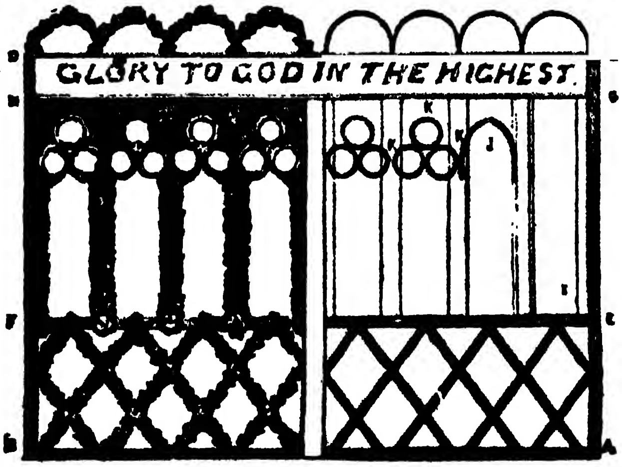

Fig. 4.

Fig. 33.

Fig. 3.

them with coloured paper. On this lay the device or text.

Banners of rich silk lined, or velvet, are handsome. The device may be applied with silk or satin of a different colour, first tacking it flat a little way in. Then turn in the edges and hem or stitch it down. A pretty passementerie or gold cord may be used to cover the join. Line the banner with silk or muslin, and stiff net or buckram between. Figs. 7, 8, 9, 17, 34, and 35 are shields with devices. Figs. 10, 11, 12 and 13 are shapes for shields. Figs. 14, 15, and 16 are designs for banners.

Figs. 31 and 37 are designs for borders for calico texts. The centres are formed of rows of berries, with holly, ivy, or laurel-leaves, and with a gold cord through the centre.

The rest are devices for shields or banners. Or, together with the devices on the shields and banners, they may be cut out of large-sized cards or wood, covered with evergreens and immortelles, and used for decoration.

Fig. 33 gives the device of the double triangle. A triangle with its three sides, three in one, represents the Trinity. In the centre there is a cross, the emblem of salvation. The double triangle forms a star of six points. Fig. 15 gives a star of six points, and represents the Trinity. The circle is emblematical of eternity, for it has neither beginning nor end. In Fig. 36, I.H.S. (the first

three letters of the name of Jesus in Greek) the I forms a cross. In Fig. 28 the I signifies Jesus, the X Christ.

Fig. 18 is a cross to be covered with evergreens and flowers. The circle in the centre is to be made of a piece of cane stretched round and covered with calico. On this an appropriate inscription or monogram may be placed.

Fig. 19 is St. Andrew's cross; St. Andrew is the patron saint of Scotland, according to the mediæval belief. Fig. 20 is the Maltese cross, used by the Knights of that island and Knights Templars. The Maltese cross is often confounded with the heraldic cross, Fig. 21. Another heraldic cross and circle, Fig. 22, is an emblem of salvation and eternity; Fig. 23, the cross trefoil, and Fig. 24, the cross pomée, are also heraldic, and so are Figs. 25 and 26; the latter is called the crosslet, or four crosses combined. Fig. 27 is a combination of the circle, the cross, and the initials of Christ. Cut out and covered with evergreen, especially holly or cypress, mounted on a circle of calico, with a thick border of red immortelles or holly, and an outer border of leaves, it forms an excellent device. The initial letters are to be of berries or flowers.

The initials I.H.S. are so generally used, that many neglect the I.H.C. (*Jesus Humanitatis Consolator*), equally appropriate, or the XP. signifying Christ, the first two letters of the name in Greek (ΧΡΙΣΤΟΣ), see Fig. 29. Fig. 30 is the Greek cross, and that of St. George for England: it is this which is borne on our English flag. We may observe in this place that the victory of St. George over the Dragon is an allegory typical of the conquest of sin, or extirpation of heathenism; and St. Patrick's expulsion of the reptiles from Ireland is a like fable. The cross of Iona—the Irish cross—is shown in Fig. 31. Without the circle, it would be the pectoral cross, worn by persons of distinction in early ages—that is, in the sixth century. Strange that only 500 years after the coming of Christ, such corruption should have crept into His Church as that the cross itself, by its special form, should be used as an emblem of social distinction. Fig. 32 is a very curious Christian symbol. It represents the Trinity in the triangle, each side of which proceeds from a ball or circle containing a letter of each Sacred Name. P. is for *Pater*, the Father, F. for *Filius*, the Son, S.S. for *Sanctus Spiritus*, the Holy Ghost. In the centre is the word *Deus* (God) connected by three in one again, and the words *est*, *non est* (is, and is not) contain the mystery of the Trinity in words.

SOCIETY.—I.

ETIQUETTE OF VISITING, ETC.

SOME knowledge of the social code of ceremonious rules and forms is indispensable to everyone who desires to pass through the world respectably and respected. Whether in a domestic sphere or in the more distant relations of social life, certain occasions demand an especial line of conduct to be followed by persons thrown into mutual contact; and these observances cannot be neglected without peril to personal advancement, and, what is a consideration of more value still, peril to the preservation of sympathetic feeling so desirable to maintain between individuals closely connected by, perchance, family ties. Whether mere strangers be in question, or members of the same kindred, it is most desirable that the established rules of etiquette should be observed.

With regard to the meaning of the word itself, it is a pity that a more extended sense is not attached to its use. Strictly speaking, the word "etiquette" was formerly applied to a card on which court observances and required ceremonies were inscribed. From this derivation has doubtless arisen the impression that all rules for behaviour in society are of a conventional character, and devoid of hearty good-will characteristic of more intimate intercourse, when, in reality, no prescribed forms of politeness *can* be pleasing unless they proceed from a kindly disposition, and are proffered in a right honest spirit of cordiality. Fictitious attempts at politeness soon belie themselves upon close acquaintance.

It is, perhaps, in the shelter which the rules of society afford to persons who desire to live in a circumspect and unoffending manner towards all men, that the true value of social etiquette lies. No one needs a code of observances to live happily with well-tried friends and beloved relatives. But manifold are the circumstances under which, for instance, an acquaintanceship is hastily formed, and as speedily found unsuitable. To make desirable acquaintances, and to disengage oneself from those which are not found convenient, being wants most commonly felt, we will endeavour to describe the most effectual mode of securing both objects, according to the prescribed rules of etiquette.

At the outset the custom of being introduced by a mutual acquaintance is the first canon to be observed in making the acquaintance of a stranger. As a general rule no one is supposed to be conscious of the presence of any person without having been previously introduced, or "presented," as the more modern term is. The merest mention of the names of the assembled individuals is sufficient if the occasion on which they meet be of a casual nature. For example, on a lady entering an apartment where several persons are assembled, if strangers to her, the host or hostess need simply mention the name of the new comer, and indicate by a slight sign the persons whose acquaintance the guest might wish to make, to have complied with the required form. In a large party this step is unnecessary. The duty of the person who receives the guest is then confined to introducing the different members of the company with whom the greatest stranger is likely to be thrown into immediate contact.

Of late an attempt has been made to do away with the formal introduction of visitors to each other when the place of meeting happens to be under the roof of some mutual friend. But the new fashion has not become general; English people, especially, are not prone to make advances, even under the most auspicious circumstances, unless they are tolerably certain of their ground. At the same time, if a few friends meet upon a select occasion, such as a dinner, it would be ill-mannered to wait for a formal introduction before exchanging remarks on any matter of general conversation. Sometimes it happens that a particular introduction is for a time impossible. It should then be taken for granted that all guests present, by special invitation, are suitable for each other's acquaintance. The acquaintanceship, however, need not be renewed on a future occasion. Persons thus thrown together may meet the next day, if they please, as total strangers.

The introduction of mutual strangers at dancing parties is subject to the same rules. Parties who have danced in the same quadrille or in other dances are not expected to recognise each other afterwards, unless intimately acquainted with friends on either side. The option of recognising an acquaintance thus made rests with the lady. If on meeting her partner on a subsequent occasion she pleases to bow, there is no impropriety in her doing so. In no case must the gentleman make the first sign of recognition. Also, with regard to the meeting of persons on business matters, the mutual acquaintance need be carried no further than the intercourse which has occasioned the acquaintanceship. People who are possessed of ordinary tact, generally manage to avoid giving what is commonly termed a "direct cut" to such acquaintances, by not observing each other. If, however, direct contact is quite inevitable, the slightest

recognition is simple courtesy between persons of the same rank in life.

Whenever disparity of age or position exists between individuals that have been presented to each other by a mutual friend, the person superior in years or station should be the first to make the advance. If the younger or inferior should venture to take the initiative, he must be prepared for a rebuff, the more cutting, possibly, from the polite hauteur with which the expected salutation may be granted. Between equals the lady always makes the advance; but not if superiority of age and station exists on the part of the gentleman.

When it is desired to confer an honour on a person by being presented to another, somewhat of formality of manner is usual. It is always customary to present the inferior in station to the superior individual, accompanying the act of presentation by such words as, "Allow me to present Mr., or Mrs., or Miss So-and-so;" or, if the favour has been especially asked for, the introducer may say, "Mr. or Mrs. So-and-so is very desirous of making your acquaintance, if you will allow me to present him, or her." When permission is given, the individual may be introduced in the usual form. The introducer having complied with the request, leaves the new acquaintances to converse on any matter of common interest to themselves.

Letters of introduction are frequently asked of friends to their acquaintances, when a stranger is about to travel abroad, or reside in a new neighbourhood. These letters should always be given into the hands of the person seeking the favour unsealed. By doing so, permission is tacitly given the recipient to read the contents, in order that he may see precisely the light in which he is presented to his future acquaintance. Letters of introduction should be closed when presented. The most usual mode of forwarding such letters to their destination is by enclosing them in an envelope containing a card bearing the name and address of the new comer. If the person to whom the letter of introduction is addressed desires to honour his correspondent's recommendation, he loses no time in calling at the address indicated, and offering such civilities as may be expected. The most friendly form of such offers consists in an invitation to dine; which, under ordinary circumstances, should be declined, unless the invitation be accompanied by very forcible reasons. Whether an invitation to dinner be given or not, the visit should be returned within at least three days from the time one has been received, or earlier if possible. The above rules apply equally to ladies.

On a stranger or a family arriving in a neighbourhood, it is the duty of the elder inhabitants to leave cards. If the acquaintances thus presenting themselves are desirable, it is usual for the visit to be returned personally, or cards left, within one week. The latter rule is very conducive to good feeling in remote neighbourhoods, where it is now-a-days mostly in force. In the suburbs of large towns a less hospitable reception generally awaits strangers, causing acquaintanceship to be deferred till something is known of the new comers. These opportunities are of frequent occurrence, and need but a little cordiality to become occasions of forming an agreeable society. In proportion to the number of residents who are of the latter way of thinking, suburbs are more or less desirable localities to reside in.

Visitors to large towns, where their acquaintances are necessarily much scattered, usually announce their arrival by simply enclosing their address-cards to any persons whom they may wish to receive. Intimate acquaintances are not expected to wait for similar announcements, but call as soon as they learn the arrival and address of the expected visitor.

In all cases, it is the person who is the new comer that first receives offers of hospitality.

A slight acquaintanceship may be kept alive for an indefinite period, by occasional morning calls. Many valuable connections are preserved by no other means than by periodically leaving a card at a patron's house, in return for a similar civility received. Within a week of having been formally introduced to an individual, it is not unusual for cards to be left. In all cases of doubt as to who shall take the initiative, the rules above stated should be observed. Whenever death, illness, or any domestic event affecting the happiness or welfare of a family is generally known, by advertisement in the public journals or otherwise, it is customary for acquaintances to leave cards of inquiry, condolence, congratulation and so forth. No words need be written on such cards, unless it be particularly wished. A suitable message given to the servant explains the intention of the call. Cards turned down at the corner signify either that they have been sent by a servant, or that the visitor had no intention of paying a personal visit beyond the threshold of the residence.

Whenever a family is in affliction, cards of inquiry may be left daily, if desired, without the compliment being returned. At the termination of the malady, or on the decease of the sufferer, it is usual for the head of the family to acknowledge a sense of the kindness received, by sending cards or printed notes returning thanks for inquiries. Such notices having been received, it is generally understood that the family is prepared to receive visitors in the usual manner.

After death has taken place in a family, visitors are not expected to call personally beyond the door, until a week after the funeral. Distant acquaintances should defer their visits for a still longer period.

Interviews of a business nature with strangers should be short, and the subject of conversation should be confined to matter on which the interview has been sought. It need not be mentioned that punctuality is the essence of politeness on these occasions, and that a person failing to keep an appointment is not entitled to courteous consideration.

At certain seasons of the year, complimentary visits are very properly paid by persons who have even very slight acquaintance with each other. At Christmas-time, for instance, young people may seasonably leave cards on their patrons and superiors in age and position in society. This practice has long obtained in France, where, on New Year's Day, everyone calls on friends and relatives. Except when very intimate, callers do not enter the house; the mere act of leaving a card signifies a friendly intention. Year by year this excellent and pleasant practice of keeping together one's connection, and propitiating the good offices of those who have it in their power to advance one's interest in life, is becoming more generally adopted.

People who live at a distance from their acquaintances often enclose cards. Plain visiting-cards are suitable for people of the same age and station. Elders generally send "Christmas cards" to the youthful members of their acquaintance. These picture-cards are now an extensive article of commerce, and great expense may be incurred in the purchase of such gifts. But the latter is not a necessary compliment, and those who cannot afford the outlay should not be deterred from expressing their good-will by any consideration of the kind.

If, after having returned all visits, and made suitable acknowledgments of favours received by leaving cards, &c., the visits of an individual are not reciprocated, cessation of similar acts of courtesy should occur. At the same time, every allowance should be made for the different circumstances in life which may interfere to prevent a system of formal visiting, and no offence should be taken for what may be unavoidable, or unless some unjustifiable neglect is apparent.

COOKERY.—LV.

SAUSAGE-MEATS, FORCEMEATS, AND PATÉS.

THE sausages made in certain parts of England are much prized—as those from Epping, Norwich, Oxford, and Cambridge. The sausages made at Bologna and Gottingen, on the Continent, are also much esteemed by epicures. The last-named sausages, and smoked and dried meats from all parts of Europe, may now be bought at the Italian warehouses in London—as hams from Westphalia and Bayonne; beef from Hamburg; boars' heads, *pâtés*, and savoury pies of meat and game from Strasbourg; besides varieties of potted game, salted and potted fish, &c.

Oxford and Cambridge Sausage-meats are made as follows:—Take 1½ pounds of pig-meat, cut from the griskins, without any skin; ½ pound of veal; and 1½ pounds of beef suet. Mince these meats separately, very finely; then mix them with a dessertspoonful of dried, powdered, and sifted sage; pepper and salt to taste; and the well-beaten yolks and whites of five eggs. The whole should be thoroughly beaten together, as much depends upon the mixing. The meat should be kept closely pressed down in a stone jar. Oxford sausage-meat is mostly dressed in small flat cakes, flavoured over before frying; but formerly it was put into small skins. The above receipt Theodore Hook got from Oxford, when he was writing his "Adventures of Peter Priggins, the College Scout." The Oxford sausages are not so choice in appearance as the Cambridge and Epping, which have a greater proportion of veal. The Oxford, to some tastes, are of better flavour—the plainer they are, the better they dress for breakfast. If put in skins, they should be transparent, that the meat should be seen through. They keep good two or three days in a cold place in summer, and nearly a week in winter, with care.

Pork and Beef Sausages.—Chop finely 2 pounds of fat and lean pork, and 2 pounds of lean beef; season with ground black pepper, allspice, and salt, and put into skins. Smoke four days, or until the sausages turn red, with sawdust in a tub, as hams are smoked. When wanted, boil half an hour.

Beef Sausages.—Chop very finely 3 pounds of lean beef and 1½ pounds of suet, and mix well with a teaspoonful of pounded sage, the same of thyme and allspice, and pepper and salt to taste. Put the meat into skins, well cleaned and washed.

Pork Sausages.—Chop finely a pound of the inward fat of the pig, and half the quantity of lean pork; also a few sage-leaves and a little lemon-thyme, and grate three tablespoonfuls of bread; mix these well together, and season with salt and black pepper, grated nutmeg, and pounded mace and cloves. Put the meat into skins, or pack it in a jar, and tie it over; to be fried in rolls or cakes, when wanted. Or chop finely 6 pounds of pork, as above, with which mix 1 spoonful of ground allspice; 1 spoonful of pounded sage and thyme mixed; ½ ounce of pepper and 1 ounce of salt. With this mixture fill the skins, and hang them in a dry place. The skins should be previously twined on a stick, well scraped and washed, and kept in salt and water two hours before filling. In making all kinds of sausages, it is important to keep out pieces of skin, sinew, and bone.

Wurtemburg Sausages are prepared of blood, liver, bacon, brains, milk, bread, and meat, and mixed together with salt and spices; the mixture is then put into skins, and next boiled and smoked. When these sausages are well prepared, they may be preserved for months, and furnish a nourishing, savoury food; but when the spices and salt are deficient, and particularly when they are smoked too late or not sufficiently, they undergo a peculiar kind of putrefaction, which begins at the centre of the sausages, and is poisonous.

Beef Forcemeat.—Cut into small pieces 1 pound of lean beef, ½ pound of beef suet, and ½ pound of fat bacon; beat them together in a marble mortar, with half a teaspoonful of powdered thyme and majoram, the same of ground allspice, and half the quantity of pounded mace. Season with pepper and salt, and mix with the whole two well-beaten eggs.

Veal Forcemeat.—Scrape 1 pound of veal and ½ pound of fat bacon; beat them well together in a marble mortar, adding the crumb of a French roll, powdered mace and nutmeg 1 drachm each, 1 tablespoonful of chopped onions, parsley, and mushroom, with pepper and salt. Mix all this together with two well-beaten eggs, and rub it through a sieve. This forcemeat may be used on all occasions for balls, pies, &c. If rolled up in balls, covered thickly with bread-crumbs, fried in hot fat, and served with fried parsley, it makes a nice dish.

Strasbourg Pâtés de Foie Gras are made of the livers of geese, which are enlarged to an unnatural size by the process of shutting the birds up singly in coops too narrow to allow them to turn, and stuffing them twice a day with maize. They are generally kept in a dark cellar, and winter is the season for fattening them, coolness being essential. Sulphur is steeped in the water given to the birds to increase their appetite. Strange stories have been told of the cruelties practised in fattening the geese, or rather their livers, by nailing their feet to a plank, and placing them before a great fire; hence persons began to feel some qualms of conscience for indulging in these luxuries, obtained by such cruel means. But Soyer examined the subject at Strasbourg, and declared the above stories to be altogether devoid of truth. Up to the age of eight months, the geese are allowed to feed at full liberty in the open air; they are then brought to market, and sold to persons whose business it is to fatten them for killing; they are placed in coops, and fed for a month or five weeks, three times a day, with wheat, and allowed as much water as they please. Each bird eats about a bushel of corn during the process of fattening; and the water of Strasbourg, it is said, contributes to increase the size of the liver. When sufficiently fat, they are killed. We give this explanation in order that humane persons may not be deterred from eating the Strasbourg *pâtés* by the absurd stories of the fattening.

Sausage Rolls.—Take equal portions of cold roast veal and ham, or cold fowl and tongue; chop these together very small, season with powdered sweet herbs, salt, and cayenne pepper; mix well together, and put a portion of the chopped and seasoned meat, rolled together, into puff paste to cover it; and bake for half an hour in a brisk oven. These rolls are excellent eating, either hot or cold, and are especially adapted for travelling or pic-nic parties.

To collar Pig's Head.—Scour well the head and ears, and remove the hair, snout, eyes, and brain. Soak it for twelve hours in water; then drain it, and salt it five or six days with common salt and saltpetre. Boil it sufficiently to allow the bones to be taken out; then sprinkle it with salt and pepper, and roll up the head and ears, the thick towards the thin end, so as to make the roll of equal size; the pig's feet may likewise be boned and put round the outside. Bind the whole in a broad tape with a cloth, boil it till tender, put a heavy weight upon it, and when cold, remove the cloth. It may be kept in or out of pickle, of salt and water and vinegar, to be boiled often. A fine sauce for pig's head, feet, and ears, may be made by boiling a gallon of wheat-bran in a gallon of water, for half an hour, adding four ounces of salt, a bay-leaf or two, and a sprig of rosemary. Strain it and use cold. To collar a pig's head to resemble brawn, salt it longer, and with more saltpetre than just directed, adding pieces of lean pork, and covering the whole with cow-heel, to imitate the horn.

DECORATIONS FOR CHRISTMAS AND OTHER SEASONS.—II.

SOME of the designs already illustrated are suitable for house decorations. The texts on calico, framed in evergreen wreaths, are particularly suitable, and also such words as "Peace and Good Will towards Men," "Come unto Me, all ye that labour," "Welcome," "Glory to God," &c.

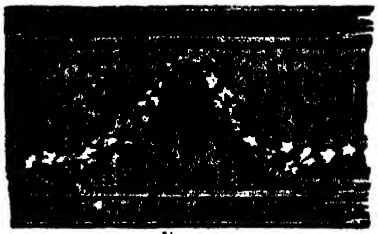

Fig. 1.

If there is a gallery to the church, it may be ornamented by tying garlands of evergreens close together on a rope with twine, so as to form a *cordon*. Fasten it along the front of the gallery in regular festoons, with a

Fig. 2.

shield over the hollow of each festoon. A set of banners (such as Fig. 15, page 108 of this volume), bearing the Christian attributes, Faith, Hope, Charity, Perseverance, Piety, Long-suffering, Love to God, Forbearance, Prayer, Praise, Humility, Sympathy, &c., could be very effectively used. Standard gaslights should be dressed with moderate-sized bouquets of holly and berries. The columns should be wreathed with cordons of evergreen.

The decorations of churches should be in keeping with the architecture. Rich carved work should not be touched, but blank spaces covered. A font that has not a carved cover may be enriched with a flat top, decorated with flowers in clay. The Late Pointed style of architecture, as it is called, which has columns with shafts marked by flutes, large windows near together, and screen-work, is best ornamented with shields, monograms, and small ornaments frequently placed. The columns should not be wreathed. Plain columns

Fig. 3.

may have garlands of flowers round the capitals and base, with or without wreaths all down them. The mere circle round the capitals of columns and the display of texts on the bare walls, suits the heavy Norman architecture best. The Early Pointed style is very well decorated with geometrical combinations of ornament.

To obtain the shape of a shield, first draw a heart on paper, making it rather long for the width; afterwards rule a straight line across the top, marking above the semicircles. The shield shape is thus constructed. Shields may be suspended by coloured ribbon below the capitals of columns, the capitals having wreaths of evergreen round them.

Fig. 3 is an illustration of the decoration of church pillars. The two styles shown in A and B should not be mixed in one church. A is decorated with a double wreath at the top, and a shield hung on the column by means of ribbon or coloured tape. B is an evergreen cordon. If the decoration B is used, then between the arches shields may be placed in the manner shown, suspended by a ribbon with a triple bow. A nail must be fixed in the wall, to which a bunch of evergreens can be tied. The shield is hung over this by the ribbon from a second nail higher up, and the ribbon passed behind the bouquet of evergreens.

Fig. 2 is gallery decoration. Banners, or circles, or devices in evergreen, may take the place of shields in the way shown in Fig. 1. The cross is made of yellow flowers, the circle of black flowers, and there is a white eye in the centre. Such devices may be alternate with twisted festoons or smaller festoons, or they may only occur three times in the length of the gallery, according to taste and resources. There should be a handsome device for the organ gallery, if there be one; a large text in flowers at least. Where an organ gallery exists, it should always display one of the best ornaments made for the church.

To decorate a schoolroom or hall for Christmas, make a cordon of evergreens on a rope. Fix nails close to the ceiling at regular intervals, and suspend the cordon in festoons. Make hoops of crinoline cane, which cost a halfpenny each, as large as a family tea-tray. Hang these on the walls at intervals, after they have been covered with evergreens. Cut a number of pieces of scarlet, blue, and yellow silk or glazed calico, like banner hand-screens. Take a sheet of gold paper, pencil letters on the back, and cut them out. With these form sentences on the banners, such as "A Merry Christmas," "Welcome," "Be Merry and Wise," "Peace and Good Will." Cut fringe from the gold paper and edge the banners. Cut cane the length of the top, gum the top of the banner over the cane, and fix pink tape ends to hang it from the wall, as the shields are hung in Fig. 1. A banner is to be placed in the centre of each hoop. The cordon of flowers round the top of the wall will be improved by a few crimson and pink paper flowers, sewn on at intervals. To make these, fold in strips a sheet of tissue paper; trace a tea-saucer on it, and cut out the round from the doubled paper. Crimp the paper with a reader's knife. About six rounds, sewn together in the centre at the back and pinched into shape, make the rose. At the principal end of the room let the cordon from the ceiling form a double festoon, with white calico between the loops, on which an appropriate sentence or motto is inscribed.

Pieces of crinoline cane, or lath, tied across and covered with evergreen bound on with twine, make good crosses for church decoration.

To make texts of cut-out letters, paper, silk, cloth, or velvet may be used. The initial letter of every word may be large and of one colour, the other letters small and black, or of another colour. Or alternate colours may be used for the words. Wall-paper offers a good ground for texts. Red cloth paper, as a ground, may have on it blue, gold, and black letters. Blue cloth paper —gold, scarlet, green, and silver letters. Pale green—scarlet, gold, and violet letters. Violet—red, gold, silver, and black. Suitable papers and substances for text grounds are morocco paper, paper imitating straw plait, fancy wood, mother-of-pearl, and papers with small gold patterns on them. These fancy papers can be had of most fancy stationers, and the wall-papers from paper-hangers. To make the crosses and circles correctly, a box of instruments is needed—one that includes a compass, a rule, and a bow-pencil. A box lid, if quite even, may be substituted for a rule. A bow-pencil can be improvised by taking a drawing-pin or a packing-needle and tying a string to it. Stick it well in the paper. Measure the distance for the size of the circle, and tie the other end of the string to the pencil. Then carry the pencil all round on the paper at the full length of the string. Drawing-pins also serve to fix texts in many parts of a church. They may be inserted all round like borders, and they do not damage woodwork, which is a recommendation for their use.

Paste all the letters to be used in forming a text at the back, and lay them on a clean newspaper. Do not put more paste than necessary. Fix on one at a time, pressing it with a clean soft rag or handkerchief—so as to absorb and remove any superfluous moisture—or a few sheets of blotting paper.

To make the paste, take three tablespoonfuls of flour, and as much powdered rosin as will lie on a shilling. Mix nicely in half a pint of water, and then stir it over the fire in a saucepan till it boils. Boil it for five minutes. Use cold. It will not keep long. The paste-brush must be cleansed in boiling water, and wiped every time it is used.

In mediæval times the following significance was given to colour:- White was emblematical of light, purity, virginity, faith, joy, and life. Carmine red, of Christ's passion and death, of royalty, of the Holy Spirit, and of fire. Blue, of truth, constancy, piety. Dark red, of anger, war, and bloodshed. Gold and bright yellow, of the sun, of brightness, marriage, and fruitfulness. Dingy yellow, of deceit and jealousy. Green, of hope, of spring, prosperity, victory, immortality. Violet, of love, truth, humility, passion, and suffering. Black, of death, mourning, humiliation; also of the earth. Blue with gold stars, of heaven. White and red roses, of love and innocence, or love and wisdom.

HOUSEHOLD DECORATIONS FOR CHRISTMAS, ETC.

We now come to that branch of our subject which treats directly of household decoration. As Christmas decorations are "but for a season," it is not necessary that they should be of expensive materials, or elaborate workmanship; on the contrary, the cheapness and simplicity of the means used in producing the effect, seem often to enhance the pleasure received from looking upon it. In a room furnished as most of our modern rooms are, the decoration will necessarily be frequently bestowed upon the furniture, pictures, &c., rather than on the room itself; but we shall proceed to show simple and inexpensive means, by which, in addition to the usual wreaths round pier-glass and picture-frames, and festoons from chandeliers to cornices, mottoes breathing a sentiment of greeting and hospitality to friends, or suggestions of the duties of Christmas-tide, may be quickly produced, and with good and pleasing effect.

Ivy-ribbon.—This will be found most useful, either for borders to scrolls bearing mottoes or texts, or for forming devices generally. It is best made by cutting old newspapers, or sheets of waste paper into long strips, about two inches wide, and upon these sewing, with black cotton, ivy-leaves stripped from their stalks. These should be sewn on so that no part of the paper can be seen when the strips of ribbon are nailed upon the wall, and care should be taken to have the edges as level as possible, without being too formal. Of course, holly-leaves would answer the purpose equally well, but they are not so pleasant to work with as ivy, and laurel is somewhat too

A CHRISTMAS GATHERING.

(To face page 114, Vol. III.)

heavy in appearance, except when used at a considerable height from the ground.

Ground for Scrolls.—The best ground for scrolls is paper—although glazed calico is sometimes used—and this may be of any colour to harmonise with the general appearance of the room, or to please the taste of the decorator. Generally, however, the common cartridge paper will be found to have as good an effect as any. This should be cut—if the scroll is intended to be at any distance above the eye—into strips about a foot wide, and as long as the sheet of paper will allow; while, where the ribbon or scroll folds over so as to show its reverse side, a coloured paper should be used. Orange, crimson, or blue paper will be found to relieve the white with good effect.

Letters.—These are best cut out of coloured paper, and although the taste of the present day inclines to everything mediæval, we think, for household decoration, that more modernised letters are preferable, from their being far more legible to the majority of readers, whilst, at the same time, they possess sufficient quaintness and ornamental character. It will be found best to first cut out an alphabet in cardboard, by which means it becomes a mere mechanical labour of a few minutes to mark out on coloured paper a considerable number of letters, and by doubling the paper twice, four letters may be cut out at a time. The height of the letters should be from two to three inches less than the width of the scroll, in order to allow of the ivy-ribbon being brought sufficiently over its edge to effectually conceal it. The colour of the letters will be a matter of choice; from experience, however, we prefer for the ordinary letters of the motto or text a dark blue, purple, or black, with crimson or red for initials, or sometimes for whole words which seem to require special prominence. If a gold initial be desired, it would be well to place it upon a coloured ground—blue is, perhaps, best—for the sake of relief. We prefer the white ground generally, because it admits of the use of more colours in the lettering; but we have seen very nice effects got by putting white letters on a blue ground. In all cases of temporary decorations we advise cutting the letters out of coloured paper rather than painting them, as being more simple and expeditious, while the effect is often better, owing to the greater brilliancy of the colours.

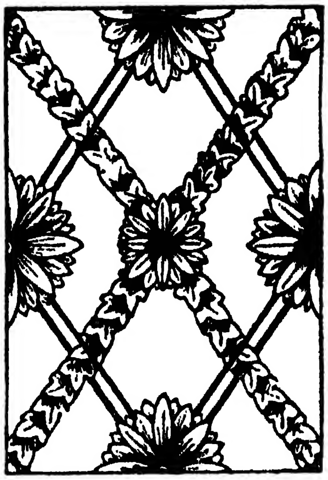

Fig. 4

Fig. 5

Scarlet Tape.—This will be found very useful, and to have a good effect in conjunction with the ivy-ribbon, and is itself useful for forming the lines of diaper patterns on plain walls. In operation it will be found advisable, when the letters are cut out, to lay the whole scroll or design out on the floor, and then to arrange the letters loosely in their places. When properly arranged and spaced, apply a little gum or paste to each one separately, and stick it down smoothly in its place. The scroll will afterwards be fixed on the wall with a few fine tacks, and the ivy-ribbon nailed over its edges, thus forming a border. Afterwards, by means of the scarlet tape, a red line may be drawn above and below the letters. We have given an example of a text made in this manner. The scroll is a ribbon made of white cartridge paper, with a crimson or blue reverse, according to the colour of the wall upon which it is fixed: the letters generally dark blue, purple, or black, with crimson or deep red initials; the shield, if the room be papered with crimson hangings, blue, charged with an "open hand" (the badge of courtesy and hospitality) in gold; the whole bordered with ivy-ribbon. In this way scrolls may be made for any room with suitable mottoes; as, for an entrance-hall, "Welcome;" for a ballroom the well-known line from Byron would be appropriate:—"On with the dance, let joy be unconfined;"—or from Shakespeare, for a room on the occasion of old family gatherings: "This day we keep an old-accustomed feast."

It will frequently be the case that, on the occasion of larger meetings of friends, concerts, lectures, &c., school-rooms or even barns may require to be decorated, in order to make their appearance for the time harmonise with the amusement or object of the evening. For rooms such as these more decoration is required, and generally better effects can be obtained, as there are no paper-hangings or cornices to be injured by the driving of nails, &c., and the decorator is in consequence comparatively untrammelled. An almost unlimited quantity of ivy-ribbon will always be found useful, if not absolutely necessary, and one of the best effects we have ever seen was obtained by merely diapering the walls with a plain lozenge diaper of ivy-ribbon, with a large flower in each lozenge, and a smaller one at the intersection of the strips of ivy-ribbon. As the walls of these rooms are generally of a light colour, the flowers in the centre of the lozenge should be of dark coloured paper, while for those at the intersections of the ivy-ribbon, nothing is better than white, pink, or orange. The breadth of the lozenge-spaces should depend upon the size of the room, and may vary from one foot to two; the lines of dark ivy-ribbon may, if desired, be relieved with lines of scarlet tape.

Flowers for Diapers.—Although for wreaths and festoons paper flowers resembling natural forms are best, those for diapers and flat decorations have a better effect when made of the starlike conventional shape. To make these, take strips of paper of any colour, and from four to six inches long by about one inch wide; fold several of these lengthwise and across, and, from a cardboard pattern, cut them out of the proper form; then taking a number of them, not fewer than twelve, place them side by side, and tie them across the middle with cotton, open them, and arrange them in the form of the complete flower (Fig. 4), and put a pin through the centre to fix them by. For the larger flowers a longer and somewhat wider strip of paper will be necessary.

Paper Patterns for imitating Stained Glass.—Instead of covering the windows of schoolrooms with curtains, a good effect may be obtained by filling the lozenge-shaped panes of glass with fleurs-de-lis, crosses, &c., cut out of paper. If intended to be seen in the evening, it is better, since the glass appears black at night, to cut these out of thick light-coloured paper; but if they are to be seen by daylight, thin paper and transparent colours are best. A red cross, and a light blue or yellow fleur-de-lis in alternate panes has a good effect.

Paper Chains.—These are very useful in giving a light, fairy-like effect to a room, and taking off the somewhat sombre effect of dark evergreens. The making of them will furnish amusement to the younger members of the family, as they are made very easily. The links are formed of strips of rather thick paper of various colours, about six inches long, and from half an inch to an inch wide. One link being made of red paper, a strip of green is passed through it, and the ends pasted together. The choice of colours will of course be a matter of taste.

Ivy Brackets.—These are useful in relieving the flatness of walls, and serve to place busts, vases of flowers, &c., upon. They are made of rough one-inch deal. When nailed against the wall they are dressed with ivy until no part of the wood can be seen (Fig. 5).

There is another kind of decoration which is very pleasing in its effect. In this, conventional ornament is sparingly employed, and the chief material used is the small-leaved ivy found clinging to trees or over-running banks. This is tastefully trained along string-courses over windows, and about walls, so as to suggest the idea of an ivy-plant having forced its way within, as it sometimes will in old churches and other buildings; and we have seen both churches and schoolrooms decorated in this manner, and always with good effect. In this kind of decoration all formality must be avoided, joinings in the ivy-stems must be concealed by leaves, and Nature followed as closely as possible in the arrangement and direction of the branches. If it be desirable to train the ivy over any highly decorative piece of stone carving—as, for instance, moulded cornices, little plugs of stiff paper rolled up should be placed in deep moulding or corners, and the ivy fixed to these by pins.

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ODDS AND ENDS.

Cure for Chapped Hands.—Glycerine applied over the hands at night is an excellent remedy. This liquid is very much employed in Russia during the prevalence of severe frosts, to protect the skin of the face when exposed to the weather.

Kitt Composition.—The composition that bears this name is employed to render canvas waterproof. It is prepared by melting, over a slow fire, 7 pounds 14 ounces of rosin, 6 pounds 14 ounces of pitch, 6 pounds 14 ounces of bees'-wax, and 1 pound 14 ounces of tallow.

To Gild on Paper or Vellum with Leaf-gold.—This may be done by previously applying gum-water or a strong solution of isinglass or size to the part we wish to gild, and when the coating is nearly dry applying the leaf-gold. When the gilding is quite dry and hard, it may be burnished by rubbing it over with a smooth pebble, or a piece of polished agate. Paper may be silvered in the same way.

How to produce a Rich Colour on the Surface of Jewellery.—It is worth while knowing that the method employed by jewellers to give the rich gold tint to their work, is done by exposing the articles to the action of a solution prepared in the following manner:—One part of sea salt, one part of alum, and two parts of nitre, in three or four of water. It has, however, the great disadvantage of not only dissolving a portion of the copper of which the trinket is composed, but also some of the gold. This gold may, however, be recovered from the solution by adding to it some pure protosulphate of iron, which precipitates the metal.

To prepare Gold and Silver Ink.—Liquid gold and silver are prepared by rubbing up leaf-gold and silver in honey on a slab with a muller. This rubbing is to be continued until the metal is very finely divided. The honey is now to be removed by pouring hot water on the mass, and carefully pouring off the fluid from the deposit of minutely-divided metal. The finely-powdered gold or silver is then to be mixed with strong mucilage, prepared from the whitest gum arabic, and preserved in a bottle for use. If this liquid gold or silver be placed in a mussel-shell or small saucer, and suffered to dry, it forms the gold and silver paints employed for illuminating and gilding drawings and other artistic works.

Permanent Marking-ink for Linen, &c.—A good and permanent marking-ink for linen may be made by dissolving platinum in a mixture of three parts hydrochloric acid and one of nitric acid, and letting the solution go on until the acid can dissolve no more. The liquid is then to be diluted with water, and some caustic potash added. Some sugar and gum must also be put in to thicken it. All writing done with this ink afterwards requires a hot flat-iron to be passed over it, to make the writing indelible.

How to produce a Crystalline Appearance on Tin Plate.—A beautiful crystalline appearance may be produced on tin plate by making the metal hot, and then pouring over its surface a mixture of three parts of hydrochloric acid and one of nitric acid, when a beautiful variegated crystalline appearance is shown on its surface. This appearance may be varied by applying the acid when the metal is more or less hot, and employing it more or less strong. When the acid has remained on for a few seconds it must be carefully washed off, so as to remove all traces of it. The metal must then be dried, and again made so hot that it can scarcely be touched by the finger. It is then to be brushed over with a solution (lacquer) of shellac in methylated spirits of wine, tinted with dragon's-blood or saffron, to preserve the surface untarnished from the action of the air.

Caution about Ivory.—Articles made of ivory should on no account be exposed to heat or dryness. They should never be exposed to the direct rays of a hot sun, nor placed on the mantelshelf, as they are very apt to split in such circumstances. They also warp like wood when exposed to heat or a very dry air. It is said that when ivory becomes discoloured by being kept, the white colour it previously had may be restored by soaking the article in water, and then, when wet, exposing it to the action of light, while shut up in a well-closed glass case. When ivory has been long kept it diminishes, owing to the loss of the gelatine of which it is partly composed. This may be remedied by soaking the article in a solution of that substance. In consequence of ivory not always preserving the same length under all circumstances, it has been recommended that it be not employed in making very minute measurements.

Jet for Ornaments.—Jet is a kind of bituminous coal, differing from cannel coal in having a brighter lustre, and being of a deeper black. When polished, it presents a most brilliant black appearance, but before that is done it has only a brown hue. It is capable of receiving a brilliant polish, like alabaster, and may be easily worked, like that substance. It is very extensively used for articles of jewellery, and is often imitated by black glass; but articles composed of real jet may always be known by their extreme lightness.

Confectionery.—Jujubes are made from a mixture of syrup and mucilage, put in trays and placed in a warm place until it dries up sufficiently to be cut into pieces. Pastille drops are composed of sugar-syrup, with the addition of some substance to colour it. This is made hot in a ladle, and then let fall in separate drops on a tin plate. The plate, with its contents, is then to be dried in a warm room. Sugar-plums or comfits are prepared by placing either coriander seeds, caraway seeds, almonds, barberries, pieces of orange-peel, lemon-peel, or cinnamon, with sugar-syrup and starch, into a flat pan suspended over the fire. The pan is to be kept continually moving, so that the seeds, rolling about in the mixture, may collect it about them, and become encased in it.

CAGE-BIRDS.—VII.

THE GOLDFINCH (*Fringilla carduelis*).

THIS beautiful bird derives its Latin name from *fringilla*, a finch, and *carduus*, a thistle, this being a plant on which it often feeds; but various other names are also given to it. In Scotland they term it goldie and goldspink; others call it the dapper-finch, red-fronted thistle-finch, King Harry, red-cap, &c. In autumn, on going to a common, where thistles are numerous, he may be seen, in a happy state, twittering and feasting on the seeds, and using his mellow call-notes, "Sepat, sepat, sepat." The goldfinch may be found wild in nearly all parts of Great Britain. Its song is sweet and varied. In its wild state it commences singing about March, and continues to do so until the moulting season—July or August.

Goldfinches prefer building their nests in large orchards near the tops of trees, particularly apple or pear-trees; occasionally in tall thick hedges. They have beautiful nests, very firm, and finely rounded; externally constructed of fine moss, lichens, and delicate fibres of roots neatly interwoven; internally lined with wool, horsehair, and thistledown. The eggs (from four to five in number) are of a bluish grey or sea-green ground; have pale red spots, speckles, and stripes, mixed with streaks of reddish black, which often form a circle at the large end. The female has usually about two nests each year.

GOLDFINCHES AND NEST.

Nestlings.—These birds are usually taken when nine or ten days old, and brought up by hand. They are fed on soaked bread, mixed with scalded rape, canary, and flax-seeds, and a small quantity of mawseeds occasionally, made into a moist paste. With a small flat-pointed piece of wood, give a small quantity of this food several times a day. In warm weather it should be replenished daily, as it is likely to become acid and injurious. This food to be continued until they are five or six weeks old, by which time they will commence feeding themselves. Then commence feeding them on the adult bird's food. These are the birds selected as pupils to acquire superior song.

Greypates (so called from the head being grey while

young) are birds caught when a few weeks old, soon after they can feed themselves, and before they have moulted; these birds, though tender, if they survive and become reconciled to the confinement and change of food, sing freely, and acquire song nearly as well as nestlings, in the course of time. If they become hardy birds, they are sometimes, if apt scholars, sold for high prices. In former times, some goldfinches singing a peculiar song, would fetch from five to ten guineas each; at the present time, hardly any such birds are to be found, and the peculiar song at present admired is quite varied from the former.

Flight Birds are those that are caught after they have moulted in the fields, generally from September to February; if two or more years old, they are not so easily tamed, and do not sing so freely; they are of less value than nestlings or greypates. Those caught in spring, though very handsome, often die soon after they are caged; but should they survive a month, if placed in the open air, will sometimes sing freely. They are often selected to match with hen canaries.

About September, after they have moulted, goldfinches (and other birds) congregate on flight, seeking places abounding with thistles. Between this time and Christmas great numbers of birds are caught, and sold at less prices than at any other season. When first caught, dealers keep about a dozen together in a store-cage, and feed them principally on bruised hempseed, generally thrown at the bottom of the cage; canary and flaxseed (linseed) being placed in a trough at the end of the cage. Fresh-caught goldfinches die in great numbers, and until they have been caged a fortnight or three weeks, and habituated to their change of food, are very likely to die. Persons purchasing fresh-caught birds are very likely to lose them.

The goldfinch is clever, docile, and affectionate. Its length is about five inches and a half, of which the tail measures two inches. It has a white bill, tipped with black (but becomes perfectly white when the male is in full song), very pointed, and rather flattish at the sides. The front of the head is a fine crimson—sometimes scarlet; a wide border of the same colour surrounds the under base of the beak. From the angles of the mouth to the eyes, runs a black line; the cheeks are white; a broad black line runs down each side of the head; the back part of the head is white; the back, rump, and breast of a fine pale brown; the belly white, the wings and tail black, the primaries of both wings and tail white, and across each wing runs a beautiful yellow stripe: the legs are white. The female is not so deep-coloured about the head and wings. The male is black-shouldered, and the female not so black, inclining to brown.

There are some goldfinches not often seen, termed cheverels or bastard-cheverels; the first has a perfect white ring round the neck and a clear white mark along the centre of the throat. The bastard-cheverel has the same mark in the centre of the throat, but not the perfect ring round the neck.

The food usually given to these birds is flax and canary-seeds, with occasionally bruised hempseed, and thistle-seed. Clean water should be given in summer daily.

To select a Male Bird.—The colours of the male are brighter than those of the female. The bill is longer; the edges of the wings and the shoulders of a deeper black, and the red and black on the head and throat are brighter. The eyes are full and bright, and the yellow on the wings is brighter. It has a bolder appearance generally.

Large, open, ornamental cages may be used for these birds, as well as canaries. Some persons think the square cage, with wooden top and back, is best for these birds, if exposed to the air, as it protects them particularly from cold. Some of the fanciers keep goldfinches (and other birds) in cages about 7½ inches high, 6 inches long, and 4½ inches from back to front, having the two sides and front wired about half way down, the remaining portion (including back and top) being wood. This enables them to carry the cages in handkerchiefs to various places, in order that their birds may sing matches at publichouses, to which great numbers of goldfinches and linnets are taken.

Some persons keep these birds in a cage where they have to drag a little wagon up an inclined plane into the cage, to open the lid of a box to obtain food, and haul up their water from a little well underneath the cage.

DÉCALCOMANIE.

DÉCALCOMANIE is a very simple process of ornamenting the outsides of vases, plates, door-handles, door-plates, &c., in imitation of the finest painted china; also for transparencies on glass, equal to the stained glass used in churches, hall and staircase windows, back, parlour and library windows, lamp-shades, &c. The method consists in transferring coloured designs, or prints, from paper on to the article to be ornamented, in such a manner that they remain so perfectly fixed and permanent that the application of water does not remove them; and white Parian vases, plates, toilette-bottles, match-boxes, &c., ornamented by the art of décalcomanie, possess all the effect and almost the permanency of the most valuable painted china. It is also adapted for white wood card-cases, screens, blotting-books, glove and knitting-boxes, silks, satins, paper and card-board goods, and nearly every fancy article.

Articles necessary for Décalcomanie.—Décalcomanie fixing liquid, for fixing on the designs, 1s. the bottle; décalcomanie varnish, for varnishing the finished articles, 1s. the bottle; benzoin, for cleaning brushes, &c., 6d. the bottle; small sponge; camel-hair brushes, a variety of sizes; ivory folders, for rubbing down designs; Parian vases, toilette-bottles, candlesticks, match-boxes, white wood screens, card-boxes, card-cases, work-boxes, chess-tables, glove-boxes, &c. &c.

Directions for Ornamenting by the process of Décalcomanie.—Cover the whole of the coloured or printed part of the design with the fixing liquid, using a small camel-hair brush. Should the design have a coloured background, its entire surface may be brushed over; but if, for instance, it is a group of flowers, the coloured parts alone must be varnished, and care should be taken to leave the white ground untouched. When the design is entirely painted over with the fixing liquid, let it stand for about five minutes to set; then place it, varnished side downwards, on the article to be ornamented, and, with an ivory folder, rub it well down, in order that the design may adhere firmly to the article, being careful at the same time that the paper does not shift. When sufficiently rubbed down, damp the paper with a wet sponge until the design partially appears through the paper, which must then be thoroughly wetted, particularly at the edges, for about half a minute, by the use of a camel-hair brush and water. Then remove the design, by lifting up one corner of the paper, and quickly drawing it off, when the drawing, either coloured or printed, will remain on the article, the paper coming away entirely. The vase, &c., should now be allowed to stand for three or four hours, that the design may become quite dry, when it may be varnished over with the varnish. Should any mistake occur, or the design get shifted, it can be cleaned off by a careful use of rectified spirits of turpentine or benzoin.

Before putting away the brushes, they should be washed in turpentine or benzoin, otherwise they will dry quite hard. The articles necessary for décalcomanie may be obtained at most drawing material repositories.

BEER, AND HOW TO BREW IT.—I.

ALTHOUGH beer has always been our national beverage, so widely have the methods of preparing it varied at different times, that the beer of some periods would scarcely be recognised, much less approved, could it be tasted by the people of others. At the present time the public voice is in favour of beer in which the flavour of hops predominates, but this taste is wholly a thing of the last fifty years; before that time half the quantity of hops now used would have been thought excessive. "Staleness," to which we now object, was held by our grandfathers, as it still is by that highly conservative body the peasantry, to be a mark of excellence. Indeed, the use of hops at all has been general no farther back than the age of Elizabeth; in the reign of her brother, Edward VI., they were forbidden by statute as prejudicial to public health, and it was only under her father, Henry VIII., in 1524, that they were first introduced from Germany and the Low Countries; previously, beer had only occasionally been made bitter with wormwood and herbs. With the German method of brewing we received the German name "beer;" the old English name for all malt liquors was "ale," a term which was in its turn derived, with improvements in the art, from the Norsemen at the time of the Danish conquest. The beer of the Anglo-Saxons appears to have been of an inferior quality. Still earlier we find a species of beer to have been in use among the ancient Britons; their Roman masters speak of it in anything but appreciative terms. It was a thick drink, prepared from wheat and sweetened with honey, and to modern tastes would no doubt be exceedingly nasty. From the earliest times barley-beer was a common drink of the ancient Egyptians. The Greeks made it under the name of barley-wine. The Romans were acquainted with it, but seem to have looked upon its use as barbarous. Pliny, speaking of beer, says, "All the several nations who inhabit the West of Europe have a liquor with which they intoxicate themselves, made with corn and water. The manner of making this liquor is somewhat different in Gaul, Spain, and other countries, and it is called by many names, but its nature and properties are everywhere the same. The people of Spain, in particular, brew this liquor so well that it will keep for a long time. So exquisite is the ingenuity of mankind in gratifying their vicious appetites, that they have thus invented a method to make water itself intoxicate." Tacitus says that the Germans of his time were much given to beer drinking. The love of the ancient Scandinavians for their beer is well known; they brewed it and drank it in quantities which would astonish any but a drayman of these degenerate days. We read in the "Heimskringla" of one of the early Kings of Norway visiting a neighbouring potentate on a brewing day, inbibing more than was proper, and drowning himself by falling into a tun of wort. In fact, the Norsemen placed their hopes of eternal happiness on a plentiful supply of beer.

Although the scope of this publication is purely practical, we have ventured to give some few historical facts; the subject is of general interest, and we believe that they will be acceptable.

Materials.—The only materials allowed by law in the brewing of beer are malt, hops, sugar, and water, together with isinglass for refining. To these might be added without prejudice to the public health, camomile flowers in bitter beer, and liquorice and treacle in porter. Unscrupulous brewers and publicans have, however, added a long supplementary list of ingredients by no means so harmless; the substances commonly used for adulteration are quassia, cocculus indicus, grains of paradise, opium, copperas, tobacco, sulphuric acid, capsicum, and salt (to induce thirst). The assertion that strychnine is employed by some brewers, to render their bitter beer more intensely so, has gained wide credence; all evidence goes, however, to show that it is entirely unfounded.

Malt.—Although in different countries various kinds of grain have been and still are used for making malt, the best and most generally accepted is barley. The samples of barley best adapted are those in which the corns are light in colour, bright, smooth, and plump; those most in favour are grown on loose rich soils. To be in perfection the barley should be cut as soon as fully ripe, but not sooner, and should be exposed to no rain before stacking. "Weathered" barley, that which has suffered from rain, may be known by its dark colour, and should not be employed. Exposure to wet in the harvest-field is sure to cause some of the grains to germinate; these will not germinate a second time in the process of malting, and consequently such barley will make but imperfect malt. Owing to this, the prices of barley vary widely; two or three days of rain in harvest will frequently reduce the value of a crop by one-third or one-half. The finest samples of barley in the best districts are nearly all secured by the large brewers for the manufacture of pale ale.

Malting consists of four distinct processes. The barley is first *steeped* by immersing it with as much water as it will absorb in a cistern. Good barley will take up half as much water as its own bulk, inferior kinds less. It is allowed to steep for forty hours. It is next removed to the *couch*, a kind of wooden trough, where it remains in a heap for twenty-six hours more to "sweat;" here its temperature rises about ten degrees, and the grains begin to germinate rapidly. *Flooring* consists in spreading the heap from the couch evenly over the floor, at first to a depth of about fifteen inches. In this stage it is constantly turned, and the thickness gradually decreased to about six inches. The thickness to which malt is spread on the floor must, however, be regulated by the state of the atmosphere; if the weather is mild it must be spread more thinly than if cold. This operation occupies about a fortnight; lastly the malt is *kiln-dried*. Light-coloured malt for ale and beer is dried at a comparatively low and even temperature; but for stout and porter it is necessary to increase the heat of the kiln rapidly to a high pitch, so as to partially burn the malt. After removal from the kiln, the malt is thrown on a wire screen to separate from it the sprouts formed by germination which have been broken off in the drying; and is finally ground by being passed between iron rollers. The operations of malting are carried on in the winter months only. Hops are employed to preserve beer, at the same time they improve its flavour and impart to it a tonic quality; in the process of brewing they yield a volatile fragrant aromatic oil, a bitter resin, and a little tannin. The strongest are those grown in Kent and Surrey, the Worcester hops are milder. Good hops are yellow, bright, and highly aromatic; the new should always be bought by preference, since they always deteriorate with age; when they have been kept three or four years they are practically worthless.

Water.—The goodness of the beer will, to some extent, depend on the water used; that which contains common salt, sulphate of lime, and carbonate of lime in solution, is most proper for the purpose. The Burton water, so highly esteemed for brewing, is much charged with sulphate of lime. Beer made with such water requires no "finings," but at once becomes clear without assistance. Some persons are of opinion that rain-water is to be preferred, and they are in a certain sense right; the strength of the malt and hops is more thoroughly extracted by rain-water than by any other, but in beer brewed with it the valuable mineral salts of which we have spoken will be wanting, and as rain-water can never be obtained free from organic matter, the beer will be liable to a certain amount of decomposition, which will impair its flavour and prevent its keeping properly. We cannot, therefore, recommend rain-water.

ARTICLES FOR CHRISTMAS-TREES.

A Christmas-tree may be made at home for a very trifling cost. Long as they have been in fashion in England for juvenile parties, or for Christmas-eve, these trees seem to be still in favour almost as much as ever. Christmas-trees may be covered with paltry trifles, or made the medium of dispensing suitable gifts amongst the members of a household. When the latter plan is to be adopted, each article is to be marked with the name of the intended recipient. It is also very well to add a few boxes of sugar-plums and valueless trifles, which can afterwards be raffled for. The ordinary Christmas-tree is covered with miscellaneous articles, some of more value than others, which are either distributed at hazard by the coloured paper. Fold the square in half, like Fig. 2, and cut off the piece at the top, making the two sides equal. When opened it will resemble Fig. 3. Gum it as far as the dotted line, and join it. Be sure to join it so that there is not a hole at the point. If it is made of white paper, cut some strips of red, of green, and of gold paper. Edge it with gold, and paste strips of red, green, and gold round it spirally at intervals. If the cone is made of coloured paper, use gold, white, and some favourably contrasting hue. Fig. 4 illustrates it. Another pretty way to make a rather superior ornament is, to cut a cone of bright green satin-paper, and join it. Cut a scarlet tassel, and fasten it at the point. To the top gum a piece of scarlet sarcenet, with a mouth like a bag, and over the join run some blond lace; turn a row each way,

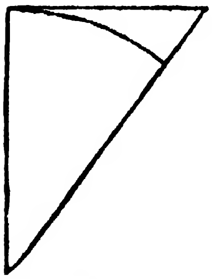


Fig. 2.

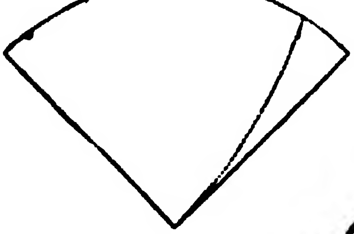


Fig. 3

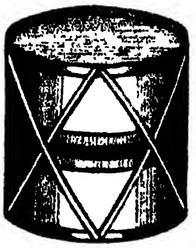


Fig. 12.

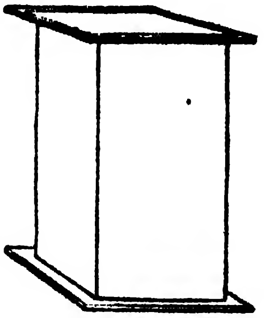


Fig. 8


Fig. 4.

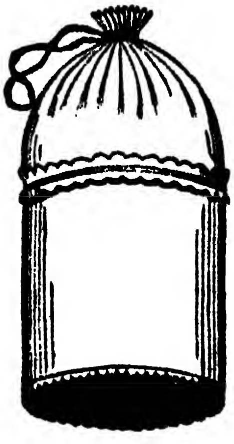


Fig. 6.

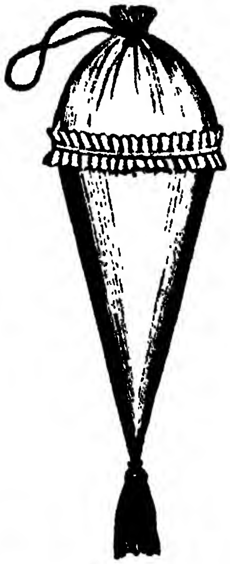


Fig. 5.


Fig. 14.

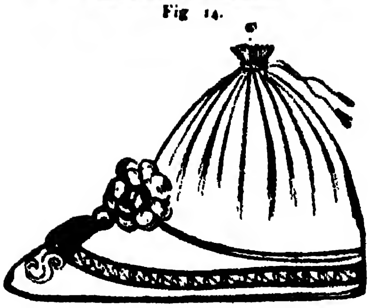


Fig. 15.

lady deputed to cut them down, or lots are drawn out of a bag of numbers corresponding to those fixed on the little presents themselves. A good-sized fir-tree, of regular shape, and with nice wide-spreading arms, is wanted. Cover this at regular intervals with gelatine lights, which are better and safer than wax tapers. These lights are like ordinary night-lights, each one contained in a little cup of gay-coloured gelatine, resembling the glass lamps used at illuminations when gas is not employed. Take care to place these lights so that not one of them is put under a bough, which it may set alight. Suspend them by fine wire, not cotton or string, which will take fire. A little behind every light arrange a bright tin reflector, star, or silvered glass ball. A number of flags are requisite to add to the gaiety of the tree, which a few bows of coloured ribbon will also enhance.

A good many small ornamental paper boxes and cases holding sugar-plums will add well to the decorations of the tree. To make paper cones, cut squares in white or and gum a strip of gold paper between (see Fig. 5). Fig. 6 is another kind of sugar-plum case. Cut a straight piece of card, and sew it together to make a round like a drum. Cut a circular piece to fit one end. Cover the sides round with paper, notch the edges, and turn them down at one end over the piece fitted in, and, if well gummed, they will keep it in place. The other end may be first sewed in. Cut a round piece of coloured paper, and gum on lastly at the end. Have a bag-top of some different shade of silk or satin, and gum it on with some pretty piece of passementerie or gilt paper over the join. If the box is covered with straw-colour, and the bag is of blue satin, it will look pretty. Odds and ends of ribbon may be used in making up these little boxes. A more valuable case may be made by first constructing a box of a strip of card, goring it with a strip of paper each side instead of by sewing. Cover this with white paper. When quite dry, bind both edges with blue satin ribbon. Then draw, in water-colours, a garland of flowers round

the barrel. Very neatly sew a blue satin bag at each end. Put a little powdered scent in, enough wadding to fill the bags, and place it on the tree. It may be suspended by its own strings of blue ribbon. A pedestal is a good design for a fancy case. A design for one is given in Fig. 8. To construct it, take a piece of card large enough to allow for its four sides. Cut this like Fig. 1, allowing four equal sides and a bit over; half-cut through the dotted lines on the right side. Join it round with the small piece inside, and fix it with strong gum. Cut a square larger than the pedestal, for the base. Turn under the little pieces that may be noticed at the base in Fig. 10, below the dotted line, gum them, and fix on the base. For the lid, cut a piece like the base, and a second piece like Fig. 10. Half-cut through the dotted lines. Join the

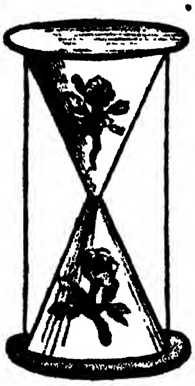


Fig. 18.

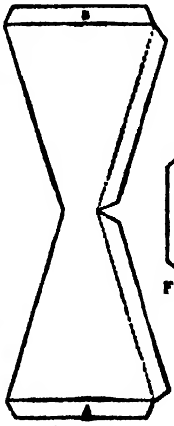


Fig. 19.

Fig. 11.

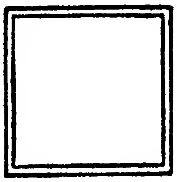
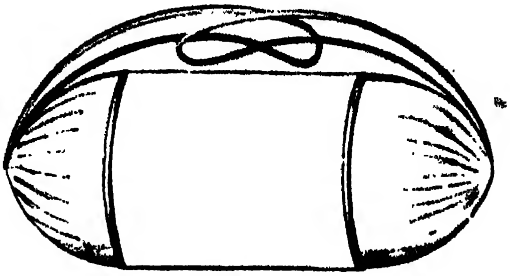


Fig. 10.



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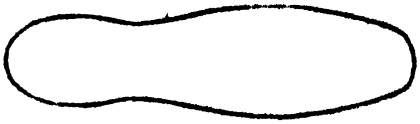


Fig. 17.

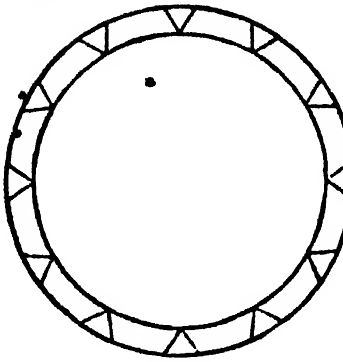


Fig. 13.

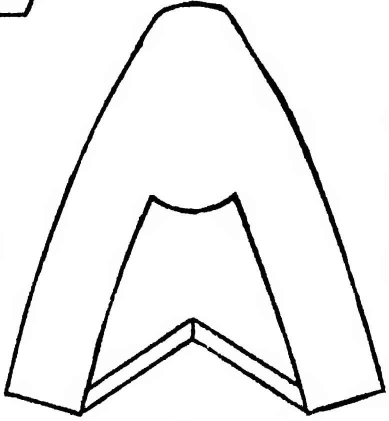


Fig. 16.

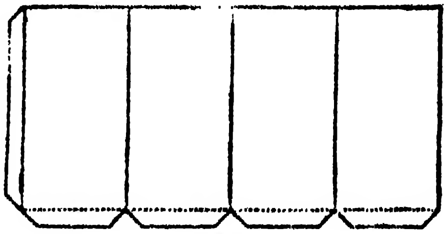


Fig. 1.

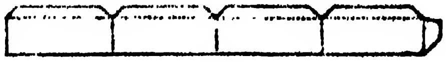


Fig. 9.

piece as the pedestal was joined, and fix the top to this piece in a similar way to that used in joining the base. But Fig. 9 must be a little narrower each side than Fig. 1, so that the smaller piece, Fig. 9, may neatly fit just inside the larger, Fig. 1. Another way to make this is to cut two pieces like Fig. 1, one just small enough to fit inside the other, and fix square ends of equal size to each. To close the box, put one inside another. Ornament the outer one with coloured paper, and bind the edges with gold, or merely bind the edges and draw a group of flowers on each side in water-colours, and also on the lid.

Fig. 12, a *Drum*, can be made of paper, and ornamented with strips of red and of gold paper, and have a few sugar-plums inside. To make it, join a piece of paper as for Fig. 6. Draw, with a bow-pencil, a round as large as the top, and a second round a little larger. Cut out the larger round, and notch the edges up (Fig. 13). When you have done this, turn down the edges, gum them, and fit them into the drum. For the other end cut a similar piece, put a loop of thread or ribbon in the centre, and put it in without gumming it. Made in card, ornamented, filled with sweetmeats, and a piece of net gummed at the top, with a band of gold paper over the join, it is very pretty.

Fig. 14 is a *Muff*.—Make this of a bit of plush that looks like fur. Put a shallow, red silk bag-mouth at each end, to look like the lining. Draw up one and sew it. Cut a piece of paper the size of the muff, roll it round, and slip it inside to keep the muff out stiff. Cardboard can be used instead of paper. Put in the sugar-plums, and draw up the mouth.

The Lucky Shoe (Fig. 15).—Cut a shoe by Fig. 16, of any pretty material; join it and bind it neatly. Cut a sole by Fig. 17. Before joining the upper part, see that it fits the sole well. Cut the sole of card, and tack the material over it. Sew the shoe to the sole all round outside. Cut a sole of white paper a little smaller than the first; gum it, and fix it inside. Make a back, and sew it neatly to the shoe. Fill with scented wadding, sweetmeats, &c., according to fancy. If the articles on the tree are raffled for, and the tree is intended for grown-up girls, as sometimes happens at a Christmas party, it causes much mirth to secrete a mock wedding-ring in one of the shoes, underneath the sugar-plums or wadding. Then make known to the company that there is a ring to be found, and predict that the finder will be the first married. The lucky shoe is a very good place for it, as shoes have, in superstitious times, always been associated with supposed charms—the horse-shoe to keep away evil spirits, the old shoe for luck to be thrown after the bride, the shoes crossed at the bedside to make the owner dream of her sweetheart, &c.

The Hour-glass (Fig. 18).—This may be made in two ways. First cut four pieces like Fig. 19, cutting off the dotted piece at the side (not at the top). Cover each piece with white satin; sew them together. Cut two rounds, much larger, of card; cover each with brown satin. Sew on by the pieces marked A and B, Fig. 19, which are to be turned down. They should have been half-cut through before sewing. Take two pieces of wire, bind coloured ribbon round them, and sew them to the hour-glass. Cut a piece of card like Fig. 11; half-cut through the dotted line; stitch it to the top; cover the top with satin. This completes the whole of it. The second and simpler way is to cut the hour-glass like Fig. 19, half-cutting through the dotted lines, and by the side pieces; gum them neatly together. On the sides draw flowers in water-colours, or paste on spangles.

DOCTORS AND PATIENTS.

SINCE the health of the community is of the greatest moment for national prosperity, no less than for private comfort, we propose to devote a paper to the consideration of the means employed in this country to keep and maintain the health of the population. Doctors are of as various sorts and degrees as are their patients; but we believe it will be universally acknowledged that with hardly an exception the British doctor is a kindly man, with a fellow-feeling for his patients, and much regard to their worldly circumstances; and that when, as occasionally happens, the patient and the doctor "fall out," the faults are pretty equal on the two sides.

Let us begin by explaining the difference between a doctor and a chemist—a distinction often not clearly understood.

A doctor—whether called a physician, surgeon, apothecary, accoucheur, or by any other title—is a man who must of necessity have devoted some years to the study of medicine and surgery; must have spent a considerable sum in acquiring medical knowledge; and must, lastly, have passed one or more severe examinations in order to become a "qualified medical man." Every medical man is obliged under an Act of Parliament to be "registered" by a Government official, and if not so registered, is liable to prosecution, and a penalty for practising. A chemist, on the other hand, has no medical education at all, but is simply apprenticed to the trade of a chemist as he might be to any other. He necessarily knows the nature of drugs, for it is his business to dispense them, and in time, no doubt, he gains some knowledge of doses and the diseases for which certain remedies are applied; but he has no knowledge of disease itself, and should not, with safety to either himself or the patient, venture to administer even the simplest remedy without medical sanction. Some incautious people are fond of dosing themselves or their children, and like to go to a chemist to ask him what is "*good for*" so-and-so, thinking thereby to save the doctor's bill.

In some neighbourhoods of the poorer class, qualified medical men find it necessary, in order to meet the requirements of their patients, to keep open shops more or less resembling those of chemists; and here both advice and medicine can be obtained at a very cheap rate. Another class of practitioner, however, avoids an "open surgery," with its blue and red bottles; and though he supplies his own medicines, does so in a surgery of a more private and professional character. Others, again, in order to avoid the annoyances of dispensing, make an arrangement with a neighbouring chemist to supply whatever medicines may be needed. All these gentlemen, in whatever way they conduct their businesses, and by whatever titles they may be commonly known, are what is termed by medical men "general practitioners;" a class of highly honourable and talented gentlemen, by whom the health of the bulk of the population is cared for. In addition to these there are physicians, surgeons, and physician-accoucheurs, who are what is termed "consulting" men, and who are, or have been, for the most part connected with one or other of the great London hospitals. These gentlemen devote themselves more or less to some particular branch of medical science, and it is usual for them to be called in for consultation with the ordinary attendant in cases of difficulty or emergency; or they will treat those who choose to seek them as their own proper patients.

The question as to the remuneration of a medical attendant is a difficult one upon which to lay down any fixed rules, since the circumstances of both patients and doctors vary so considerably. The poorest class can have no difficulty in obtaining both advice and medicine gratis, for the Poor Law provides in every district a surgeon, who is bound to attend all persons presenting an order from the relieving officer, and in most cities and towns—notably so in London—there are hospitals and dispensaries at which the poor can be treated. Nothing, however, tends to lower the self-respect of, and pauperise the poor, more than the system of indiscriminate medical relief, too common in large towns; and the charitable should therefore be careful how they insist, from mistaken kindness, upon their dependents becoming recipients of relief in this form unnecessarily. When advice and medicine can be obtained for one shilling, it is a very doubtful advantage for a poor woman to spend two or three hours in the waiting-room of a hospital for the treatment of some simple malady. If the disease is of a more serious and important character, requiring a long attendance and expensive remedies, then recourse may fairly be had to a public institution; and the patient, if recommended to enter the wards of the hospital, in order to secure more efficient attendance there, need be under no scruple in doing so.

Since the first summons for a doctor in the life of young housekeepers is usually connected with an expected addition to the home circle, it will be convenient to take this important family event as our starting-point in the question of medical fees. It must, in the first place, be distinctly understood that an engagement to attend an accouchement is equally binding upon both parties, and that the lady has no more right capriciously to change her mind and engage another attendant, without paying the first doctor his fee, than he has to refuse to attend when sent for. This question has more than once been decided in the courts of law, and may be considered now finally settled. If a doctor is out of the way when summoned to such a case, his partner or assistant, if he has one, usually attends for him until he arrives; and, though perhaps not always pleasant to the patient, no objection can be fairly raised to this practice. If it is necessary, from the unavoidable absence of the ordinary attendant, to summon a neighbouring practitioner, the question of division of the fee may be left entirely to the two doctors, the payment being made to the one originally engaged. Fees for these "interesting events" vary enormously according to circumstances, half-a-guinea or a guinea being an ordinary one in the case of the artisan's wife, and from ten to fifty guineas by no means unusual in higher circles. When engaging a doctor's services, it is much the best way to deal openly with him, and ascertain what his fee is, and how many days' attendance after the event this will include; for it must be always understood that the midwifery fee never includes any attendance *before* the confinement, and that the period of after-attendance given without extra payment varies very much. Whatever the fee agreed upon, the "happy father" should be prepared to put it into the hands of the medical attendant within a

day or two of the birth of the child; since, although other attendances may be ordinarily booked, and an account of them sent in, it is always expected that the little strangers will be paid for "on delivery."

In ordinary illnesses, if the patient attends at the doctor's surgery, and receives there the necessary advice and medicines, the transaction is usually for ready money, the time necessarily occupied being barely recompensed by the sum received. When, among the better classes, the patient prefers to call at the doctor's house, and the medicine is subsequently sent, the same charge is usually made as for a visit at the patient's own home, and is added to the running account. The charge for the visits of a general practitioner at the patient's house ranges usually from 2s. 6d. to 10s. 6d., including usually the necessary medicines, provided the patient resides within a reasonable distance of the doctor's house. The rent paid for the house appears to be the only basis upon which a fair tariff of medical fees can be founded, and houses may be conveniently divided into three classes—those the rent of which is under £50 per annum, those from £50 to £100 per annum, and those above £100 per annum. A fair charge for an ordinary visit to occupiers of the first class would be from 2s. 6d. to 3s. 6d., in the second class from 3s. 6d. to 5s., and in the third class from 5s. to 10s. 6d. A visit after ten o'clock at night, unless occurring in the course of a regular attendance, is usually and very fairly charged at twice the ordinary fee; since the inconvenient lateness of the hour usually depends upon some imprudence on the part of the patient or his friends in not sending earlier, or in being unduly alarmed at some trivial ailment. When it is considered how constantly the doctor's rest is broken necessarily, it will be obvious that he should be protected from unnecessary calls upon his strength. When there is more than one patient in the same house and family, it is usual to charge half the ordinary fee per visit for each beyond the first patient; and the lowest rate of fees is ordinarily charged for domestic servants, whether paying for themselves or being paid for by their employer.

It occasionally happens, of course, that from the gravity of the disease it is thought desirable to seek another opinion; but this must invariably be done in consultation with the medical man already attending. No consulting physician or surgeon will see a case already under the care of another medical man without meeting him, and the ordinary attendant will naturally be offended if any attempt is made to seek other advice behind his back. The suggestion for a second opinion ordinarily comes from the medical man in attendance, and he will usually recommend the consultant who, from his knowledge of the profession and of the case, he thinks will do the patient most good. If, however, anxious friends wish on their own account to call in further advice and some particular physician or surgeon, the ordinary attendant can make no objection, and is perhaps glad to be relieved of a part of the responsibility. The ordinary consultation fee is two guineas, though under peculiar circumstances this may be reduced; but, if living at a considerable distance from the consultant's house, the patient must be prepared to pay travelling fees at the rate of a guinea per mile by road, or two-thirds of that sum by rail, for one way only. In the case of suburban residences, this scale of fees varies; but the consultant must be fairly remunerated. The ordinary attendant, when obliged to disarrange his usual business to be present at a consultation, is entitled to make an extra charge. The fee of a physician or consulting surgeon, whether seen at home, or visiting within a reasonable distance, is one guinea for each visit. The fee for surgical operations varies, of course, in proportion both to the gravity of the case and the eminence of the operator.

THE HOUSEHOLD MECHANIC.—XXXVIII.

GLAZING AND ORNAMENTAL GLASS (*continued from p. 56*).

Engraving or Etching on Glass.—The glass to be engraved must be covered with a *thin* coat of wax, or of bitumen and wax combined; to effect which take a bowl of melting bees'-wax, and, if a sheet or flat piece of glass, brush it over with the wax, by means of a brush, one or more times, as may be rendered necessary, depending on the heat of the fluid bees'-wax, the thickness and coldness of the sheet of glass, and the temperature of the atmosphere of the apartment. A narrow rim or edge should be formed of the wax right round the sheet of glass, so as to contain the acid when poured on. In the case of wine glasses or such-like things, dip them once or more times into the bowl of melted wax. The glass being waxed over, sketch upon the wax the pattern or design required to be engraved with a sharp steel needle or pointed instrument, bearing in mind to make the lines upon the wax of the precise thickness or fineness desired to be engraved upon the glass; likewise let the wax be well cleared out of the lines. The design being sketched upon the wax, cover the surface with hydrofluoric acid, and expose the work to the heat of the sun's rays, taking care, however, that the wax be not melted, otherwise the pattern will be spoiled. Let the whole remain for four or five hours, during which time a whitish powder will be seen rising to the surface of the floating acid, which is the displaced glass in solution. At the end of this time wash the glass, which is now engraved, perfectly free from the wax and acid.

Exquisite Etching on Glass.—This process may be effected on glass vessels as well as on flat surfaces, but it is well that the glass be thick and of the best quality. Prepare the glass by covering it with wax or bitumen (the latter is to be preferred) in the same manner as directed in the last paragraph. Describe the pattern or design likewise with a sharp steel needle, as before directed, and pour over the whole surface of the work hydrofluoric acid. When the whole has been subjected to the acid under the sun's rays for a couple of hours, stop out the acid from those portions of the engraving intended to be fine delicate strokes, by use of Brunswick black. Let the work remain for another hour, and stop out by the same method the acid from those portions of the etching intended by the operator to be of moderate intensity. Then let the hydrofluoric acid remain upon the lines intended to be of the *greatest* intensity for an hour or two longer, after which wash the glass clean, and the etching will be found to have been executed with the greatest delicacy and effect.

Embossing on Glass.—This process is the converse of engraving and etching. It embellishes the glass by rendering its ground dull, while its pattern or device remains bright and transparent. This kind of glass has gained great favour, as it frees the inmates of its enclosure from the annoyance of being overlooked, while it affords them the opportunity of seeing without being seen. To emboss glass, paint over the ground with varnish, and then pour hydrofluoric acid upon the work, and let it remain for a few hours until the device is etched upon the glass to a sufficient depth to leave the ground raised. Wash off the acid, as also the varnish, and grind the ground by means of a little fine emery-powder and a flat piece of glass. Do not take too much emery-powder, and see that the etched pattern does not get filled up with the powder, or the brightness of the pattern will be destroyed; a little, however—insufficient to fill up the etching, which would cause it to meet the power of the glass rubber—will not hurt. Thus, the etching, having remained untouched in the grinding process, is left bright while the ground has become dull, its original bright surface having been removed by the grinding process.

SOUVENIRS.—III.

A Painted Needle-book.—To make a very pretty needle-book, cut a number of cards the shape of the illustration, Fig. 1, and about two and a half or three inches long. Decorate four of them with water-colours, like the illustration. To every decorated piece bind a plain one, by means of a strip of plain gold paper, gummed. Drill a hole at the handle, and sew the pieces together with a large bead, so as to form a fan; and from the large bead hang a tassel of small ones. In the hollow at the top of each piece slip the paper of needles, open at the top. Several needle manufacturers prepare cases of somewhat similar description at a small cost; but this one is such a pretty article for home construction, it may very well find a place amongst the fancy works of the HOUSEHOLD GUIDE. We furnish one appropriate design, but if flowers are preferred, let the border up to the flowers be entirely a deep turquoise blue, or, if preferred, pink; but the two colours must not be mixed in one fan. Colour the roses with pink, made of carmine and water, and shade them with deeper carmine. They may all be a full deep pink. The blue flowers should be drawn with Prussian blue and water, pale, and shaded with it deeper in colour. A few white flowers may be drawn, shaded with Indian ink very slightly, and with yellow hearts, shaded; and a few yellow flowers. The yellow is yellow ochre, or gamboge shaded with burnt sienna. There are also a few mauve flowers, made by mixing in the palette carmine and Prussian blue and water. The green leaves are all first coloured with pale gamboge. When dry, sap-green, or sap-green and Prussian blue, is used to shade them, or Hooker's green, No. 1 and No. 2. Scroll-work should be yellow, like the flowers, shaded with burnt sienna. A bird may have a carmine breast; a mauve head, shaded with purple; a purple tail; the near wing yellow, shaded to burnt sienna at the top, with a strong, hard band of green at the top from the body to the tip; the off wing pale yellow-green, with a strong band of blue down the edges of the tips. A butterfly should be carmine, with a band of madder brown at the edges; the eyes yellow, with blue centres; the body madder brown. Trellis-work may be burnt sienna, shaded with madder. The blue, used as a border, can be made by mixing Prussian blue and permanent white, and giving it more vividness by a slight mixture of cobalt or ultramarine (not French). If pink is used instead of blue, mix carmine and white to the right shade, and brighten it by adding a very little vermilion.

Fig. 4.

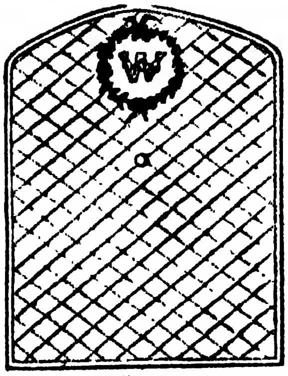


Fig. 2.

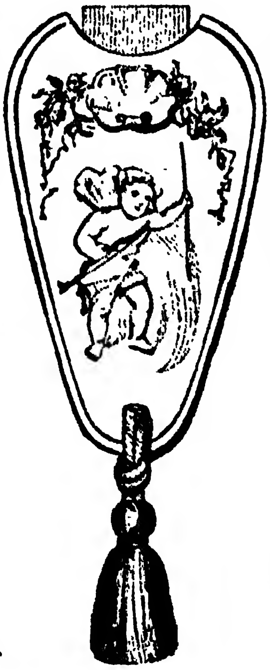


Fig. 1.

Music Wrappers.—It is very easy and very cheap to make ordinary music wrappers. Procure a small piece of American cloth. Some persons, in order to cut two wrappers out of a single width of cloth, make both too small; the edges of the music get bent and torn. If the cloth is not wide enough for two, cut one; the piece left is sure to be useful for mats. Lay a piece of music on the oilcloth, and cut it larger in width, so as to cover the music well, and about a quarter of a yard long. The music should be placed in the wrapper with the back, or folded part, level from A to B, Fig. 3. Cut another piece for the pocket from the surplus. Black is the neatest colour in American cloth. Bind the edge of the pocket, C to D, with black binding. Then tack it to the case. Begin at A, bind the two together to B, and go on binding all round. Put on two long strings of black binding at E. It is a good plan to write the name and address of the owner in large letters on the wrong side of the case, so that if lost, any honest person finding, would restore it. To make an elegant present to a musical friend, a case may be made like Fig. 2. The material is azure blue silk or satin, lined with white silk. Tack a circle for the monogram. Embroider it in white floss, and a wreath round it. Tack the lining, and then quilt the case with the machine. Cut a piece of blue and a piece of white for the pocket, and quilt it also. Make it up like the plain portfolio was made. It should be quilted and bound with white; or, instead of quilting it, work in satin stitch, with white floss, an appropriate motto, such as—

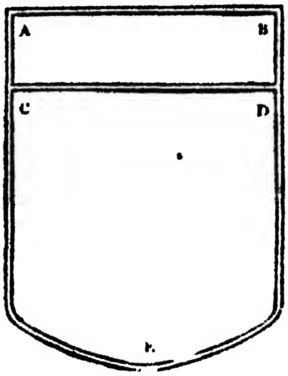


Fig. 3.

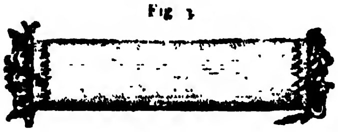
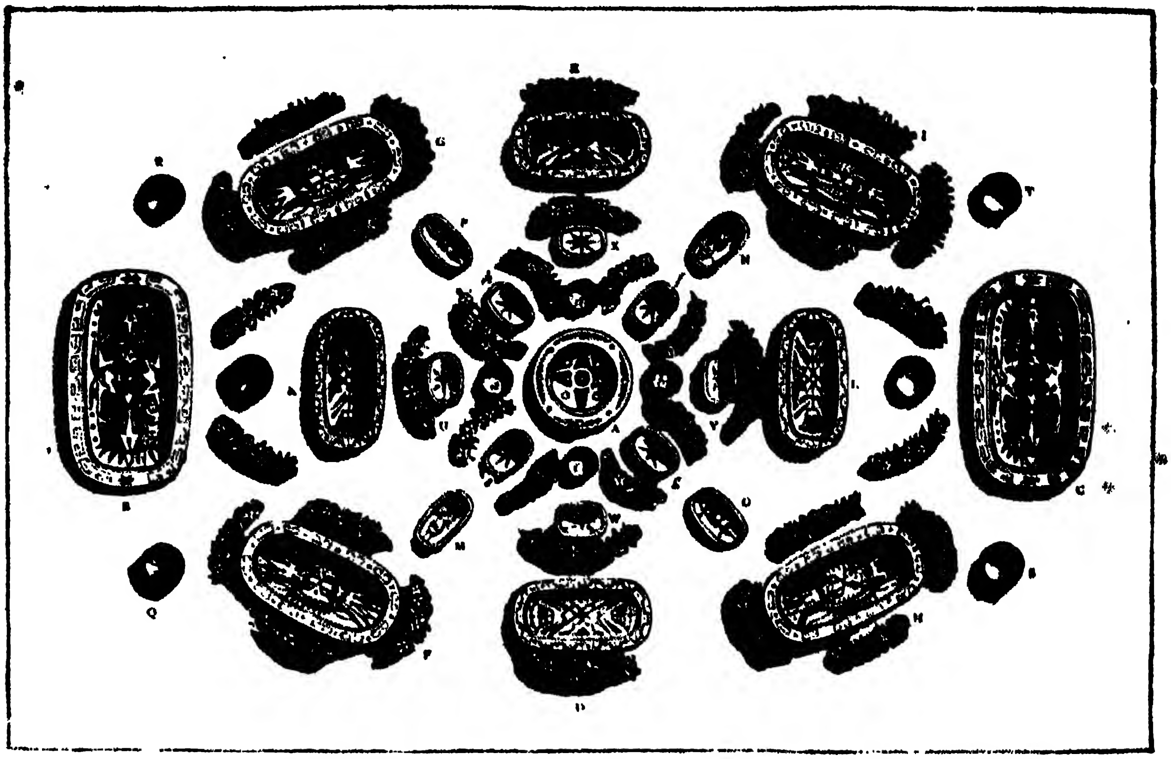


Fig. 5.

> "May harmony as sweet as this
> Lull thy gentle heart in bliss."

White filoselle is easier to work than white floss. Such a wrapper made of black silk, quilted and lined with amber colour, is also very pretty and more durable. Fig. 4 is another design for an elegant music wrapper, designed to carry two or three songs to a party or concert. Make it of pink *gros-grain* silk. Embroider the monogram and some pretty device in white, or with myrtle-green filoselle, and a border of an oval shape round each. When bound, tack to the edge a fringe of white marabout. Fig. 5 is a similar design, when completed and bound. Take a number of small artificial flowers, leaves, and short grass: tack them in a row to the edge, and then run over them neatly a second piece of ribbon, turning up the wire edges inside. In making the pocket, some powder-scent should have been previously dropped between the lining. When rolled up, a bouquet is presented at both ends.

The details of the articles we have described may be varied according to the taste and ability of the maker; but if the principles of construction are adhered to, there is great scope for the exercise of taste in ornament, and the result can scarcely fail to be agreeable to the recipient of the present.



THE SUPPER-TABLE.—I.

WITH FLORAL DECORATIONS.

A, Glass stand for flowers.
B, Soup—white, Julienne, or mullagatawny.
C, Cold fowls, cut up; only wings, breasts, and merrythoughts on dish, garnished with flowers, parsley, beetroot, lemon, &c.
D, Game, cold pheasants, garnished.
E, Game, cold partridge, garnished.
F, Oyster patties.
G, Lark patties.
H, Pâté de lièvre.
I, Eel patties.
K, Potatoes soufflées.
L, Lobster salad.
M, Tongue, glazed and garnished with meat-jelly, lemon, &c.
N, Ham in thin slices, garnished with parsley.
O, Œufs à la neige.
P, Collared meat glazed and garnished with savoury jelly.
Q, Ham sandwiches, garnished with curled parsley.
R, Anchovy sandwiches, garnished with curled parsley.
S, Potted lobster sandwiches, garnished with curled parsley.
T, Tongue sandwiches, garnished with curled parsley.
U, Cake in mould.
V, Wafers.
W, Galette—French cake.
X, Rout cakes.
a, Lemon jelly.
b, Orange jelly.
c, Lemon jelly.
d, Raspberry jelly.
e, Fresh or preserved fruit.
f, Fresh or preserved fruit.
g, Fresh or preserved fruit.
h, Fresh or preserved fruit.

Butter and cheese cut in small pieces in glass dishes; salt-cellars, decanters, &c., will be added to taste.

The flowers are placed in the small glasses round the dishes; for fresh-cut flowers they should be filled with damp sand and moss, in which the flowers will be fixed. Small artificial flowers can be arranged in these glass dishes in the same way, with short stalks, and damp moss pressed firmly into the dishes.

For Christmas table decorations the flowers may be either mixed with a large addition of evergreens—either holly, box, and small-leaved shrubs—or the flowers may be entirely set aside for holly, mistletoe, box, laurustinus, arbutus, Christmas rose, &c. The China monthly rose and a few winter flowers may be placed in some of the glasses, but this depends entirely on the taste and the capability of supplying flowers.

COOKERY.—LVI.

CHRISTMAS FARE (*Continued from Vol. II., p. 313.*)

Roast Turkey.—Hang the turkey at a good distance from a clear brisk fire; singe and dust it with flour; then baste several times with cold butter, which will make the froth stronger than basting with hot dripping, and the turkey will rise better. When done, dish it up with brown gravy, and garnish with lemon and sausages, if approved. If a middle size it will take one hour and a quarter to roast; care being taken that the breast hangs to receive the greatest proportion of heat. Allow a large turkey an hour and a half, and fix over the breast a piece of white paper when nearly done.

Stuffing.—Take the breadcrumbs of half a quartern loaf, stale; a quarter of a pound of beef suet shred very fine, a little sausage-meat, or veal scraped and pounded fine; nutmeg, pepper, and salt to taste; lemon-thyme, and other herbs rubbed fine; lemon-peel, and fresh parsley chopped fine; and three eggs well beaten. Mix in a basin, and stuff.

The Gravy.—Cut gravy-beef into thin slices, according to the quantity wanted; slice onions thin, and flour them both; fry of a light brown; put them into a stewpan, pour boiling water on the browning in the fryingpan, boil it up and pour on the meat. Put to it a bunch of parsley, thyme, and savory, a small bit of knotted marjoram, the same of tarragon, some mace, berries of allspice, whole black peppers, a clove or two, and a bit of ham or gammon of bacon. Simmer until the meat is perfectly cooked; skim all the time. When done, strain.

Boiled Turkey.—Stuff with forcemeat as above, for roast turkey, but omit the sausage-meat; dredge well with flour, and boil in a floured cloth to make it white; putting it in cold water, well covered; take off the scum when it begins to rise, and let it boil very slowly for half an hour. Then take off the kettle, and keep it closely covered; if it be of a middle size, let it stand half an hour

in hot water: the steam being kept in will stew it enough, make it rise, and keep the skin whole, tender, and very white. When dished up, pour over a little melted butter, as all the company may not choose oyster sauce; garnish with lemon and barberries, and around the turkey may be laid forcemeat balls. Set on the turkey in time that it may stew as directed, and serve with oyster sauce or parsley and butter.

Forcemeat.—Take 6 ounces of breadcrumbs, 2 ounces of lean ham, 2 ounces of butter, 6 ounces of finely shred beef suet, a little thyme, parsley chopped fine, and mace, 1 dessertspoonful of salt, a pinch of cayenne, and the yolks of three eggs; mix well, and add 3 teaspoonfuls of milk, and 1 teaspoonful of finely chopped lemon-peel; mix again, and form into balls, fry them in lard, or use for stuffing.

Roast Fowls or Chickens.—Singe, dust, and baste with butter, and put them down to a good fire; when done serve with gravy and bread sauce or egg sauce. A large fowl or capon should be stuffed with stuffing as above. Allow twenty minutes for a chicken, thirty for a fowl.

Bread Sauce.—Pour over the crumbs of a small stale loaf half a pint of boiling milk, with an onion, a blade of mace, and a few peppercorns tied up in a piece of muslin. After boiling a few minutes take out the onion and spice, and beat up the bread very smooth with a small piece of fresh butter and a little salt.

Egg Sauce.—Chop up fine two hard-boiled eggs, and add them to melted butter, with a little salt.

Boiled Fowls.—Tie them round with tape, singe, and dust with flour, put them in a kettle of cold water in a floured cloth; cover close, set on the fire, and take off the scum when it begins to rise; cover again, and boil very slowly twenty minutes; take them off, cover close, and the heat of the water will stew them in half an hour; as with turkey, it keeps the skin whole, and they will be whiter and plumper than if they had been boiled fast. When taken up, drain, and pour over them white sauce or melted butter. Garnish with parsley, and serve with oyster sauce, parsley, butter, or white sauce.

White Sauce.—Take the water in which fowls, veal, or rabbits have been boiled, or stew veal or the feet and necks of chickens in a little water. Add onion sliced, lemon-peel, white peppercorns, pounded mace or nutmeg, a bunch of sweet herbs, and boil until the flavour is good. Strain, and add a little good cream, a piece of butter, and salt; and simmer, shaking all the time.

Roast Goose.—Mix with a lump of butter a few sage-leaves scalded and chopped very fine, an onion the same, a teaspoonful of pepper, two of salt. A few breadcrumbs will make this stuffing more delicate. Put the mixture inside the goose, and sew or skewer up; attach the goose to the roasting-jack, singe well, and dredge with flour; when it is thoroughly hot baste with fresh butter. If it be a large bird it will take an hour and a half before a good clear fire. Baste constantly, and dredge again before taking up. Serve with rich gravy; garnish with lemon.

Roast Ducks.—Chop an onion and a few sage-leaves that have been previously scalded very fine, add pepper and salt and breadcrumbs; put the stuffing into the ducks, and sew or skewer up; attach to the roasting-jack; singe, and dredge with flour, and baste with butter. A strong fire will roast them in twenty minutes—the quicker they are cooked the better. Before taking up, dust with flour and baste with butter; put them upon a hot dish with rich gravy, and serve rich gravy in a sauce tureen. Garnish with lemon.

Roast Pheasant or Partridge.—Dust with flour and baste with fresh butter very frequently, roast at a distance from the fire. Serve with gravy in the dish, and bread sauce; garnish with lemon-peel, and stand the feathers of the tail of the pheasant upright. Before a good fire, half an hour will roast them.

Roast Wild Ducks.—Inside the duck put an onion with a little pepper and salt and a spoonful of red wine. If the fire be good they will cook in twenty minutes; garnish with raspings of bread, and serve with onion sauce. They should not be overdone.

The Gravy.—Take the necks and gizzards, a spoonful of port wine, half an anchovy, a blade or two of mace, a slice of an end of a lemon, an onion, and a little pepper; add a pint of water, and boil to half a pint; strain through a sieve on to a spoonful of browning made of burnt sugar, and pour over the ducks.

To Boil a Ham.—Soak over night, if long hung; put it in cold water, and let it simmer for six or eight hours, according to weight; a quarter of an hour for every pound, is usual. If done before the time for serving, cover it with a clean cloth, doubled, and keep the dish hot over boiling water. Take off the skin carefully, and strew over the ham raspings. Garnish with carrot and lemon, and fix round the knuckle a fringe of white paper.

To Boil Tongue.—If dry, it will take four hours slow boiling, after soaking; a tongue out of pickle from two hours and a half to three hours, according to size. When done, skin, and garnish with lemon and carved flowers in vegetables, or real flowers, barberries, &c. Meat or savoury jelly, very transparent, in small pieces, makes a pretty garnish for cold tongue, &c.

Roast Beef (Sirloin or Ribs).—With a good clear fire, give a quarter of an hour to the pound; but a joint of beef of 10 pounds will take about two hours and a half; 20 pounds, three hours and three-quarters. Hang the joint a good distance from the fire at first, and bring it gradually closer, when hot through, to prevent its being scorched while yet raw. Baste very frequently with clarified dripping at first, as there will not be sufficient fat when first put down; dredge with flour a quarter of an hour before taking up, to make it look frothed.

Christmas Pudding.—One pound of raisins, stoned; 1 pound of currants well washed and picked; 1 pound of beef suet, chopped very fine; 2 ounces of almonds blanched and pounded; mixed in 1 pound of sifted flour and 1 pound of grated bread; 2 ounces of candied citron; 2 ounces of candied orange-peel, and 2 of candied lemon-peel; ½ a nutmeg, grated; 1 teaspoonful of mixed spice; ½ a pound of powdered loaf sugar, and ½ a teaspoonful of salt. Moisten with ten eggs well beaten, ½ a pint of cream or milk, two glasses of white wine, and ½ a pint of brandy. Mix thoroughly; tie in a cloth or basin, and boil six hours.

Mince Pies.—Chop 1 pound of beef suet very fine; 2 pounds of apples, pared, cored, and minced; stoned raisins, 1 pound, minced; 1 pound of currants. Add of mixed spice, in powder, ½ an ounce, 1 pound of powdered sugar, 1 teaspoonful of salt, the juice of half a lemon; cut small 3 ounces of candied orange-peel, 1 ounce of citron, and 1 ounce of lemon; mix all well together with ½ a pint of brandy. Tie down close in a jar and keep for use. A larger quantity may be made in these proportions. Make the pies with rich flaky crusts.

Lemon Pudding.—Half a pound of flour, ½ a pound of suet cut very fine, ½ a pound of powdered sugar, the rind of two lemons chopped very fine indeed, the juice of one lemon, and two eggs well beaten; mix all together, and boil four hours in a shape.

Dish of Snow.—Put twelve apples over the fire, in cold water, till soft; then put them on a sieve; skin, and put the pulp in a basin. Beat up the whites of twelve eggs to a froth; then sift ½ a pound of double-refined sugar, and strew it in the eggs. Beat the pulp to a froth. Then beat the whole together till like stiff snow. The egg-whisk will beat it up well. Keep it high on a china dish, and stick a sprig of myrtle in the middle, and serve it up, garnished with small pieces of jelly and barberries.

Orange Jelly.—To a pint of orange juice, strained, add

½ ounce of dissolved isinglass, or gelatine, with sugar to taste. Boil, and when nearly cold pour into shapes. The best way to dissolve isinglass or gelatine is to put it in a basin, and just cover it with water, filling up as the isinglass swells. Boiling water poured on this answers the purpose of putting it on the fire.

Blanc-mange.—Dissolve 1 ounce of isinglass, or gelatine, and pour over it a quart of boiling milk. Stir till quite dissolved. Take the whites of four eggs, well beaten, and sugar to taste, 2 ounces of sweet and 1 ounce of bitter almonds; scald them in the jelly, allowing it to simmer until reduced to half. Strain into a mould, and turn out next day. Garnish with flowers and blanched almonds.

Lemon Cream.—Take a pint of spring-water, the rinds of two lemons pared very thin, and the juice of three: beat the whites of six eggs very well; mix them with the water and lemon; sugar to taste. Then set it over the fire, and stir till it thickens, but do not allow it to boil. Strain. Beat and add the yolks of six eggs. Put it all over the fire till quite thick and well mixed. Pour it into a basin to cool, then into jelly-glasses.

Almond Pudding.—With a teacup of milk mix a large cupful of finely-chopped beef suet, 4 ounces of bread-crumbs finely grated, 4 ounces of well-washed currants, ½ pound of stoned raisins, three well-beaten eggs, and the whites of two more, sugar, grated nutmeg and cinnamon, and a glass of rum. Butter a shape, and place in it part of the raisins, neatly in rows. Blanch 2 ounces of almonds; mix half into the other ingredients, and reserve the rest, to place in rows with the raisins in the mould, just before serving. Mix all the ingredients well together put them into the shape, and boil three hours.

Lemon Cheesecakes.—Mix together ¼ pound of fresh butter, the yolks of four eggs, ½ pound of sifted white sugar, the juice of a lemon, and the rind grated. Make a rich crust; line the dish, and make a delicate edge of the paste round it. Put in the ingredients and bake. It may be baked in small pans, if preferred.

HOUSEHOLD AMUSEMENTS.—XXIII.

MISCELLANEOUS GAMES (*continued from p. 96*).

The Game of Patience. (*To be played by one or more persons.*)—Cut fifty-two small square pieces of cardboard, about an inch and a half square, Fig. 1. On four of the

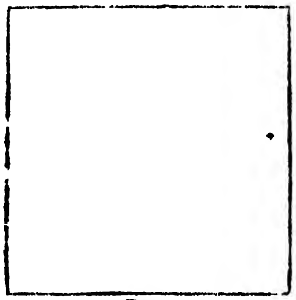


Fig. 1

cards mark, with pen and ink, the figure 1, on four of the cards figure 2, and so on up to 13, making four thirteens. Put the cards into a little silk bag; and make about four or six sets; one for each player.

To commence the game each player will open his bag and turn out the cards, placing the figures downwards; and to choose the caller, each must take up a card. The highest figure will decide.

The player to call the figures will leave his cards figures downwards; the other players will turn theirs over, and spread them about.

When all are ready, the caller takes up a card, and names the figure on it; we will suppose 12, which he places on his left, about half a yard from the edge of the table. The other players find 12, and place it in the same way.

The caller takes up another card, names the figure, and if 13 it must be placed by the side of 12, to the right, as it is best to avoid having a high figure below a small one (*b*, Fig. 2). When all the players have placed the second

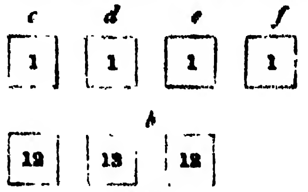


Fig. 2.

card, another is *taken up* (not chosen), by the caller, and the figure named; it may be 7. Place it below 12; the next number may be 11; place it under 13; the next, if 12, place even with 13; the next if 13, even with 12. Four cards in a row. If the next is 1, it must be placed by itself above the others (*c*, Fig. 2).

Another if		3,	place under		7		
..	..	8,			11		
.	..	2,	place on the		1	at	
..	..	1,	..	by side of	1	..	*d*
..	..	3,	..	on	2	..	*e*
..	..	13,	..	under	13		
..	..	2,	..	on	1	..	*d*
..	..	1,	..	by side of	1	..	*e*
..	..	1,	..	.. ..	1	..	*f*

The object of the game is to make up four packets, thirteen in each.

If the caller names			12,	place it under		12
..	..	..	13,	..	..	13
..	..	..	10,	..	..	12
..	..	..	9,	.	..	10
..	..	..	4,		..	8
.	..	..	5,	..	..	9

Now take the 3 and place it on one of the packets with 2 = 4; 5 must also be taken from the group, and placed on the 3.

If *b* is next called, place it on the 5, and take up the 7 from the group and place it on the 6. Take the 8, 9, 10, 11, 12, 13, and place over the 7, making up one 13. It is a rule of the game never to move a card with one below it.

The other three players may not have made up the 13; their cards may not have been placed so advantageously.

Thus the game continues until all the cards are called. The players must be careful to take up every figure from the group to make up the packets; and also to place the figures so that they may not be blocked up more than possible with high numbers below small; but it cannot be always prevented; as the card called *must* be placed somewhere; and 12 will often have to stand under 2.

The player who first makes four thirteens, wins the game.

NECESSARY AMOUNT OF FOOD.

In estimating the amount of food necessary to be taken by a healthy man during the twenty-four hours, it has to be considered whether the person has work to perform, or if he will remain at rest; also, if he has to work, whether his brain or his muscles are to be employed. It has been proved by experience that the harder the work performed, the more food is required to replace the tissues worn away by the exertion. Food that contains much nitrogen is best suited for those who work by muscular exertion, while individuals who have to undergo much mental exertion, and thus wear away the tissues of the brain and nervous system, require principally food in which the phosphates are most abundant.

Experiments have been made to ascertain the smallest quantity of food required by a man to sustain life. It was found that, while he remained at rest, the weight of bread required to keep up the circulation and respiration during twenty-four hours—no other food being taken—was little less than 6½ ounces; but that when potatoes only were taken, the man required nearly 13½ ounces during the same period. When, for this purpose, apples were employed, 1 pound 4¾ ounces were needed; when oatmeal was taken as the only food, a little less than 3½ ounces had to be used. It was also found that when either gelatine, cheese, lump sugar, flour, peameal, ground rice, or arrowroot were employed, that the man required about the same quantity that he did when he lived on oatmeal. When vegetables were tried, it was discovered that a man required about 36¾ ounces of cabbage for sustaining life; of carrots 20½ ounces only were needed. When fish was employed in these experiments, it was found that 16 ounces of whiting were only equivalent to 8 ounces of mackerel. The quantity of butter required to keep up the circulation for the twenty-four hours was a little more than 1¾ ounces; and when cocoa-nuts were used, about the same quantity was requisite. With regard to meat, a little more than 9½ ounces were required, when lean beef was used; while of lean boiled ham, only 7 ounces 9-10ths were needed. When lean veal, however, was used, 11 ounces 4-10ths were necessary.

Let us first consider the average quantity of liquid, solid, and gaseous substances consumed in twenty-four hours by a healthy man weighing 11 stone, or 154 pounds. Now, first with regard to the air he breathes: it is found that by respiration during that period he removes from the air as much as 24 ounces by weight of oxygen gas. Perhaps a better idea of the bulk of this substance will be obtained, if we mention that it would fill a measure 6 inches square eighty times, or 10 cubic feet. With reference to water, he consumes the average quantity of 68 ounces in the shape of beverages; and in addition, 25 ounces in his meat, vegetables, and bread; 7 ounces in sugar and starch, and 3 ounces 287 grains in flesh-forming substances. Of solid flesh-forming substances he takes 3 ounces of dry fibrine and 300 grains of dry albumen in his bread, meat, and vegetables; and also 137 grains of caseine in his milk and cheese. Of heat-giving substances he consumes 12 ounces of dry starch in his bread, vegetables, &c., 4 ounces of fat in his meat, and 1 ounce of butter either on bread, or in pastry. The accessories he takes are, gelatine 1 ounce, in meat; and the same quantity of cellulose, in bread, potatoes, &c.

The mineral matters taken either with, or in the food, are, common salt, 180 grains; phosphates of lime, soda, and potash, 128 grains; and various other salts, 129 grains.

Now, with reference to what a man in health ought to weigh, it is found that in healthy individuals the weight always increases with the height. The result of the investigations conducted by the late Dr. Hutchinson on 2,650 men, was that a healthy man, five feet high, ought to weigh 115 pounds; also, that he ought to increase 5 pounds in weight, for every additional inch in height. As many persons may like to learn whether their weight corresponds to their height without taking the trouble to calculate, we give a table constructed on these principles:—

	ft.	in.		in.		st.	lbs.		lbs.
A man measuring	6	0	or	72	ought to weigh	12	7	or	175
,,	5	11	,,	71	,,	12	2	,,	170
,,	5	10	,,	70	,,	11	11	,,	165
,,	5	9	,,	69	,,	11	6	,,	160
,,	5	8	,,	68	,,	11	1	,,	155
,,	5	7	,,	67	,,	10	10	,,	150
,,	5	6	,,	66	,,	10	5	,,	145
,,	5	5	,,	65	,,	10	0	,,	140
,,	5	4	,,	64	,,	9	9	,,	135
,,	5	3	,,	63	,,	9	4	,,	130
,,	5	2	,,	62	,,	8	13	,,	125
,,	5	1	,,	61	,,	8	8	,,	120
,,	5	0	,,	60	,,	8	3	,,	115

INK AND WRITING FLUIDS.

The substance commonly known by the name of British gum or dextrine, which is prepared by exposing wet starch to heat in an oven, may also be employed in place of gum arabic.

When too much of either sulphate of copper or corrosive sublimate has been added to ink, it may be removed by placing a few old steel pens in the fluid; the copper and mercury separating from the ink to be deposited in the metallic form on the steel.

A very cheap ink for household use, and possessed of a superior blue-black colour, may be prepared by boiling for some time 125 parts of logwood chips in sufficient water to yield, when cold, 1,600 parts of the decoction. This liquid is to be strained while hot through fine calico. To the filtered decoction one part of the neutral chromate of potash is added. This salt is easily prepared by the addition of more potash to the solution of the common bichromate of potash, which is now so extensively used in manufactures.

This ink, however, although it possesses the very great advantage of not depositing a sediment, nor corroding steel pens, being free from acid, cannot be recommended to a rapid writer, as it does not flow so readily from the pen as ordinary ink. Inks in the composition of which the salts of chromium are employed, have a tendency to render ink of a gelatinous consistency when long kept.

A cheap blue-black writing fluid—writing done with which cannot be removed by chemical agents, like common ink—is prepared by mixing ordinary writing-ink with a solution of the sulphate of indigo. This solution of indigo is prepared by acting on good indigo with concentrated sulphuric acid; the preparation being one part of the indigo to fourteen parts of the concentrated sulphuric acid. The very strong acid obtained from the sulphate of iron when exposed to a powerful heat in an earthen retort, and which is known by the name of the Nordhausen sulphuric acid, is to be preferred. After the acid is found on the indigo, the mixture is to be well stirred with a glass rod, so as to expose every portion of the indigo to the action of the acid, by which it is rendered soluble in water. The resulting mass is then to be dissolved in water, and carbonate of lime (chalk) added to remove all the sulphuric acid that may be present. When this is done, the liquid is to be filtered, and is then ready for use. Of course, the larger the quantity of this liquid added to the black ink the bluer will be the tint of the writing when dry.

Another blue-black writing fluid may be prepared by the addition of a solution of soluble Prussian blue to ordinary black ink. The solution of Prussian blue employed for the purpose, may be easily prepared in the following manner:—Iodine is dissolved in a solution of the iodide of potassium; this solution then is mixed with one of the fine cyanide of potassium (yellow prussiate of potash); decomposition ensues, soluble Prussian blue being precipitated, and iodide of potassium being left in solution. The mixed liquid is then filtered, the solution of iodide of potassium passing through, and the Prussian blue being left on the paper filter. This precipitate is then dissolved in distilled water, in which it is completely soluble. This blue liquid may also be used for a blue writing fluid, for which it is very well adapted, owing to its perfect fluidity, and to its not acting on steel pens like the common blue ink, which only consists of impure Prussian blue dissolved in water by the aid of oxalic acid, by which it is rendered soluble; the oxalic acid having a destructive effect on the pens employed in writing with that fluid being a great objection to the use of this kind of ink.

A fluid prepared by adding a small quantity of vanadic acid to a decoction of nutgalls, is said also to form an admirable black writing-ink.

Fig. 4.

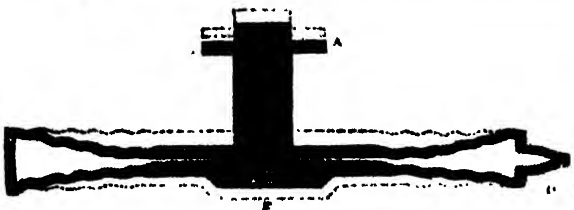


Fig. 2.

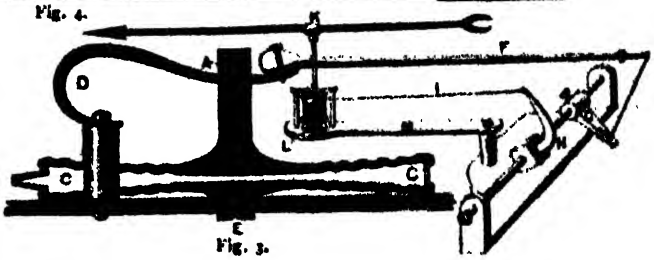


Fig. 3.

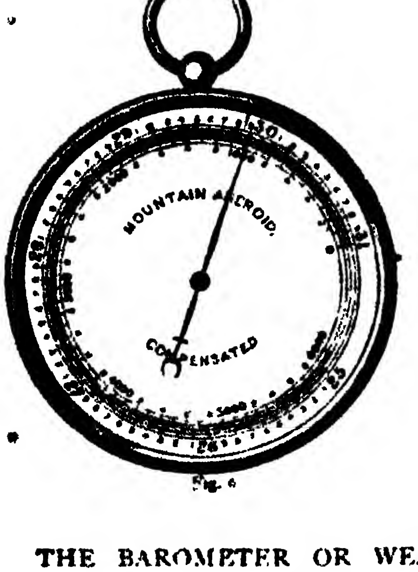


Fig. 6


Fig. 1.

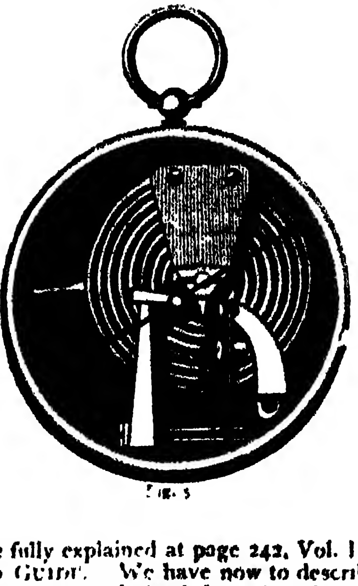


Fig. 5

THE BAROMETER OR WEATHER-GLASS.—III.

The Aneroid Barometer.—In the mercurial barometers previously described, the pulsations of the ever-varying atmospheric pressure were indicated by the rise or fall of liquid confined in a glass tube from which every trace of air had been carefully excluded, and dependent upon principles which are fully explained at page 242, Vol. II., of the HOUSEHOLD GUIDE. We have now to describe the aneroid, the name being derived from *a* and *νηρός*, signifying *without moisture*, as this form of barometer is constructed without any fluid.

If carefully made and adjusted, the aneroid is quite as reliable as the mercurial barometer, and may be specially recommended for household use; for while its indications are recorded on a dial face, similar to the wheel

barometer (the chief reason why that arrangement, from the facility of its readings, is so great a favourite with ladies), it is less liable to be put out of order by the carelessness of servants,* and is more reliable than the wheel barometer, which, as stated at page 297, vol. ii., must not be regarded as an instrument of precision, favourite though it be in many households. The absence of any fluid subject to violent oscillation through the shaking or rocking of a storm-tossed vessel renders it well adapted for use on board a yacht, where a barometer is such a necessity for indicating approaching storms; while to the tourist, who cares to measure the heights he ascends, and combines science with pleasure, it is a great boon, for it may be carried in the waistcoat pocket, a special form being made for mountain observations, no larger than a watch, and perfectly reliable in its indications up to 8,000 feet, if due precautions be taken in its management. Even larger forms of aneroid can be taken for the purpose of measuring the heights of mountains, where the mercurial mountain barometer, from its want of compactness and liability to injury, would be found inconvenient. For the same reason, the ordinary household aneroid can be taken from place to place when travelling, where the pediment or wheel barometer would be regarded as an inconvenient encumbrance.

The first dry barometer seems to have been constructed by Conte, in 1798; next came the elastic barometer of Bourdon. This consisted of a small hollow tube, oval in section, bent into a circle, and closed at both ends, from whence the air was partially exhausted. When the pressure of the atmosphere was equal to the tension of the confined air, the tube was in the condition of equilibrium. When, however, the pressure of the atmosphere diminished, there was an excess of pressure on the interior surface of the tube, and it tended to uncoil; on the other hand, when the atmospheric pressure increased there was an increase of pressure on the exterior surface, and the tube tended to coil inwards still more. This tube was fastened at its middle to the case of the instrument, and its ends were left free (Fig. 1). Each end was connected, by metallic threads, with the index that served to multiply the motion, while a small spring caused the index needle to follow with precision every change of position in the ends of the tube. The readings were taken from an engraved arc, graduated to correspond to the mercurial barometer. Fig. 1 shows the interior arrangement of the barometer of Bourdon. The idea of the aneroid arose in the mind of Vidi about 1844, but since then it has gradually approached its present perfected form. The indications of the aneroid barometer depend upon the pressure of the atmosphere upon a "vacuum chamber," which is thus constructed:—Two discs of thin metal, usually German silver, corrugated in concentric circles, are firmly soldered to a narrow ring of metal that forms the wall of the chamber. In the side of the ring is soldered a little tube, D (Fig. 2), by which the air is exhausted, and it is then hermetically sealed by soldering. To the under side is soldered a stout disc of brass, E, pierced with a female screw, by which the chamber is attached to the base plate or floor of the case. On the upper side is soldered another brass disc, from which springs a pillar, for the support of a knife-edged pin, A, that restrains the action of the counter-spring, to be presently described.

Fig. 2 shows a section of the "vacuum chamber," with the position of the corrugated discs in its unexhausted and exhausted conditions. It will be perceived that the arrangement provides for the top and bottom yielding inwardly to external pressure, and returning or expanding when the pressure is removed, and is admirably adapted for indicating the pulsations of the atmosphere. As, however, the absolute amount of expansion or contraction between the two discs is infinitely small, and not detectable by the eye, it is necessary to add a system of levers to multiply the action. These are connected with the upper surface of the vacuum chamber, as nearly all the motion is produced therein, through the under surface being fixed to the base plate. The principle of action of the aneroid will be understood by aid of the annexed diagram (Fig. 3). A strong curved spring, D, screwed to a very solid support, is connected by the pin, A, with the pillar, B, that rises from the upper side of the vacuum-chamber, C, so as to act in direct opposition to its oscillations; on the action and counteraction of these two parts depends the indications of the aneroid. To make these palpable, a long lever, F, is screwed to the end of the counter-spring, D; and, to compensate for variations of temperature, this lever is composed of brass and steel soldered together, making a compound bar, so that the different rates of expansion of the two metals may mutually counteract each other, and produce a bar of a constant length whatever the temperature may be, on the same principle as that adopted in the construction of chronometers. This main lever, F, is connected by a small steel wire to a second lever, G—mounted on an axis supported by two uprights—that also carries a third lever, H; from this extends a fine fusee chain, I,* that works round an arbor, J, which gives motion to the index hand, K, in connection with the counteraction of a fine hair-spring, L, one end of which is fixed to the arbor, J, and the other to one of the pillars on the stage arm, M that carries the index portion of the instrument. The action of the aneroid arrangement may be thus described.—When the weight of the atmosphere is increasing, the vacuum chamber, C (like the Torricelli vacuum in the mercurial barometer), is compressed, the spring, D, is pulled downwards by the pin, A, the main lever, F, is depressed, and with it, in turn, the system of levers, G and H, act upon the chain, I, so that it is uncoiled from the arbor, J, and the hand is turned to the right to indicate the equivalent to a rising mercurial barometer; simultaneously the spiral spring, L, is wound round the axis of the arbor, J. When on the other hand, the pressure of the atmosphere is decreasing, C and D, by virtue of their elasticity, relax, the main lever, F, is thrown upwards, so that, by the interaction of G and H, the chain, I, is slackened, the spiral spring, L, uncoils, and acting on the arbor, J, causes the index hand to turn to the left, to a corresponding fall in the mercurial barometer.

The graduations on the scale of an aneroid barometer are obtained by comparisons with the correct readings of a standard mercurial barometer under ordinary and reduced atmospheric pressure. Reduced pressure is obtained by placing both instruments under the receiver of an air-pump. Exact adjustment is effected by the action of a screw connected with the carriage or support that carries the main-spring. That the aneroid may be regarded as a reliable instrument, it is necessary to compare its readings from time to time with a standard mercurial barometer, and, if necessary, correct or re-adjust it by means of a slight turn of the adjusting screw just described.

As with the mercurial barometer, the aneroid should be placed in a room, or hall, where sudden or great changes of temperature are not likely to occur, for, then, if the instrument be compensated, its readings may be trusted as reliable. Usually, this instrument is hung with its dial vertical; but, if placed with the dial horizontal, it must be remembered that the indications will vary by a few hundredths of an inch in the two

* The wheel barometer is very subject to injury through the careless handling of servants when dusting the place in which it is hung, either through jerking some of the mercury out of the short limb of the syphon tube, or even by laying the instrument flat on a table, *without first closing the open end with a plug of cotton wool.* The pediment barometer is also liable to injury if laid flat on its back, as in that position air would creep up the tube and destroy the vacuum. Therefore it should be kept upright, or reversed, as previously described.

* Some makers replace the fusee chain with a fine gold ribbon for the purpose of giving free action.

Hence, if the barometer readings are systematically recorded, the aneroid, whether vertical or horizontal, should always be kept in the same position, and all readings demanding accuracy should always be made when the instrument is horizontal, so that the index hand may be in the position of greatest freedom.

The sensitiveness and rapidity of action of the aneroid admirably illustrate the true principle upon which barometric indications for a rise or fall depend, as fully explained at pages 242—3, vol. ii.—viz., that the direct downward pressure of the atmosphere that surrounds our globe is as nearly as possible equal to fifteen pounds on the square inch; but that pressure is slightly increased or decreased by its rarefaction or densification, through various meteorological influences, or the height above or below the sea-level. The index hand of an aneroid records such variations in the weight or *pressure* of the atmosphere on a *given surface* (in some instruments of moderate dimensions this is equal to fifty or sixty pounds on the external surface of the vacuum chamber), and it would therefore greatly facilitate the comprehension of the action of the barometer if the dial were graduated to indicate *absolute weight* in pounds.

By the aneroid, we can with facility not only measure the height of a mountain top, or the absolute height of an Egyptian pyramid above the plain on which it was built, or the variations of incline on a line of railway, even when the train is running at its utmost speed, but even the difference in elevation between the basement and attic of your house, as, aneroid in hand, you watch the gradual fall from "fair" to "change." Can any experiment better prove that the barometer is in reality only a measurer of atmospheric pressure, and is but indirectly a weather-glass? *For while making such a trial no change in the weather would take place*, though the index passes from "fair" to "change," and so clearly proves the absurdity of the old-fashioned barometer indications.

From what has been said, it will be seen that it is desirable that the philosophical instrument maker should graduate the dial of the aneroid to meet the special requirements of the purchaser, either for a weather-glass or a mountain barometer.

The Aneroid Weather-glass—also called by some makers the "Holosteric Barometer,"* signifying, *made entirely of solids*, and so, in a roundabout way, synonymous with "aneroid"—is represented in Fig. 4, graduated to correspond with the range of the mercurial barometer, from twenty-eight to thirty-one inches, and is lettered with the familiar indications of the wheel and household instruments—"Stormy," "Much Rain," "Rain," "Change," "Fair," "Set Fair," and "Very Dry." These vary in size from two and a half to twenty-four inches in diameter, though from two and a half to eight inches diameter are the sizes most ordinarily found in the market. The dials are made on cardboard, enamel, and on metal discs; in the latter case they are engine-divided specially for each instrument, consequently more correct than those that are merely printed.

The Watch Barometer.—On the expiration of the patents of Vidi and Fontaine Moreau, Admiral Fitzroy induced Messrs. Negretti and Zambra, the meteorological instrument manufacturers, to reduce the size of the aneroid to more convenient proportions, and to introduce a compensating arrangement to neutralise error arising through variation of temperature. This they effectually carried out in an arrangement two and a half inches in diameter, and other manufacturers ultimately carried improvements in this direction to the extreme limits of compactness in the well-known and convenient form of an aneroid barometer no larger than an ordinary hunting-watch. By a very simple arrangement, the covering-glass is made to rotate by means of a milled rim on the circumference of the case, and carry a pointer, so that subsequent increase or decrease of pressure since the previous reading may be indicated. Fig. 5 shows the modified arrangement of the working parts of this very portable instrument.

* This name applies properly to the modern form of the aneroid, wherein the strong curved spring shown in Fig. 3 replaces the helical spring employed in the earlier forms of this instrument. Custom alone has made "aneroid" the more familiar term.

The Mountain Aneroid Barometer.—This instrument is also made in watch form, but is graduated with a scale of elevation in feet as well as for pressure in inches (Fig. 6). The scale of elevation was computed by Sir G. B. Airy, the Astronomer-Royal, for the temperature of 50° Fahrenheit. Thus arranged, the aneroid may be had with a scale sufficient to measure heights not exceeding 8,000 feet; but some instruments are made with the elevation scale movable round the scale of inches, to allow of a still greater range in elevation, and without the aid of pencil and tables of correction. In using this it is necessary to bring the zero point of the scale of elevation opposite where the index hand of the instrument points, while at the base of the mountain or other elevation to be measured. On ascending, the hand, through decreasing pressure of the atmosphere, travels backwards, and, as each division of the elevation scale represents 100 feet, on gaining the summit, or point at which the measure for height is desired, a direct reading is taken, which gives the absolute height. If 1,000 on this movable scale of elevation be set opposite 31 on the inch scale, it may be used as a fixed scale, corresponding with Sir G. B. Airy's table hereafter given. It must be stated that this method of making the elevation scale movable is not scientifically correct in principle, and only those aneroids can be depended on that are graduated from a fixed point in the scale for each instrument.

It may be stated that every aneroid barometer has what may be termed *its weak point*; that is to say, the index may move steadily backwards to a certain fixed part of the scale; then it appears to be retarded in its course, but presently it will start with a jump, as if it had passed a barrier, and then move steadily onwards again. The same occurs in the forward motion of the index hand; and this point of retardation is not a constant spot on the scale, but varies with every instrument. The cause of this imperfect action in every instrument has not yet been satisfactorily explained. To secure accuracy of observation, the instrument, as previously stated, should from time to time be compared with the readings of a standard barometer, as, for scientific purposes, it cannot be relied on for any length of time, as with the less portable mercurial barometer.

To Correct or Reset the Aneroid.—At the back of the case a small screw-head will be seen; this is connected with the main-spring attached to the vacuum chamber, and, by turning this by means of a very small screw-driver, the spring may be tightened or relaxed, and the index hand may thus be made to move correspondingly to the right or left, till in reading with a barometer of known accuracy until it coincides.

TASTEFUL TRIFLES.

Spectacle-case.—This is to be made of velvet. Cut the shape first in two pieces of stout cardboard, by Figs. 1 and 2. Cut velvet the same shape but larger. Tack the velvet in a frame and embroider the word "Souvenir" and the border on one piece, and the monogram on the other. It must be done with gold twist or filoselle, the letters first raised and then worked over in satin-stitch. The border is raised and worked over in button-hole stitch. Cover each piece of card with a piece of the velvet, drawing the edges of the velvet close by catching it across and across with a needle and thread on the wrong

side of the velvet. Cut some silk by the velvet, turn in the edges, and very neatly sew it on as a lining. Next sew the two pieces of the case together very fine indeed. Afterwards, if the edge does not look neat, sew it over again, taking a bead each time. Of course the sewing must be done with silk, matching the velvet in colour and shade. The case is secured by a button. Suspend it to two pieces of ribbon uniting in a knot of bows, under which there is a long hook. A quilling of the same kind of ribbon may be observed across the top of the case in Fig. 3. The hook is to fasten the case to the waist. Instead of ribbons, fine gilt chain-work can be bought by the yard, or, better still, buy a fine-linked steel chain, which can be bought for sixpence or a shilling, and cut off what is wanted. Carry the chain across the case at the back, instead of the quilling. Stitch it securely, and take care to fasten both the ends well. A small steel brooch, if the pin is passed through the upper links of the chain, or if the links can be well sewn to any part of the ornament, will serve to fix the case securely at the waist. For a brooch a watch-hook may be substituted. A spectacle-case may be made of kid instead of velvet. In that case no cardboard is needed. Holes are pierced for the pattern, and purse-silk sewn across in satin-stitch. The kid should be lined with silk, and made up by binding the edges together with ribbon. But the former way of making a case protects the glasses best from injury.

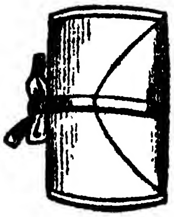


Fig. 6.

Fig. 10.

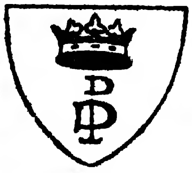


Fig. 7.

A Key-bag (Fig. 4).—Take some velvet, cut it by the pattern of the sole of a shoe. Two pieces are wanted. Tack them in a work-frame. The leaves are to be embroidered with white chalk beads, gold, and pearl beads. Both sides may be done alike. Trace the outline with fine white cotton. Put a little cotton wool over the leaf, and tack it there. Cover it with a bit of tissue paper, and tack that down to the shape of the leaf. Take threads and threads of beads to the centre, and from the point bead veins, just as satin-stitch embroidery is done. Use chalk beads, and let them lie very even, and as close as possible. Then mark in the veins with rows of gold or steel beads. Put the grapes on with large beads, a bead for each grape. Make the stalks of chalk beads. When the embroidery is finished, line the velvet with silk, tack the pieces together, and bind all round the edges with ribbon. Coloured kid embroidered with silk is almost better for a key-bag than velvet, as it is better suited to resist the working of the keys. It can be procured to order at a fancy shop with a suitable design pierced on, and will look prettiest worked in chintz colours on a grey or Havannah ground. Suspend it by two ribbons and a bow, behind which is a very large, strong, long hook. Sew an eye to the waistband or skirt of the dress close to the waist on the left side in front of the hip, and hang the key-bag from it. Made in plain pink or blue, or buff linen, nicely braided, a key-bag is very pretty and useful, and most young housewives would appreciate the convenience, for it is not fit to carry heavy keys in a dress pocket, where, too, they are apt to get entangled with other things.

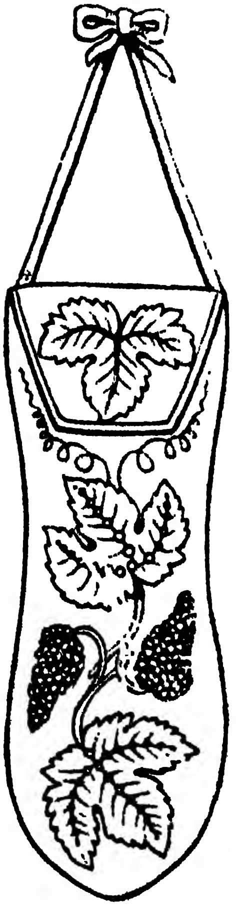


Fig. 4.

A Gentleman's Toilette-case (Fig. 5).—Take a piece of moiré antique of a maroon shade and a piece of silk the same colour and size. Run from end to end a piece of inch-wide elastic the same colour. Stitch it down at the right intervals, to contain the fittings. Put on the pocket, binding the mouth and the curved edge of the flap. This pocket may be embroidered round the edge. Tack the lining now to the moiré antique back. If this is to have any initials on it, they should be worked first on the part which will form the back when rolled up. Surmount the monogram or initial with a crest or coronet, if the gentleman for whom the case is designed has either. They can be worked in silk or gold. When these two pieces are tacked together, cut the flaps of silk, bind three sides of them; lay them in the way they are to be folded when the case is closed; tack the raw edges to the edges of the case, and bind the whole with maroon-coloured ribbon all round, and long strings. The contents should be a strop, a pair of ivory-mounted razors, a box brush in ivory, an ivory soap-box, a pair of nail-scissors, a penknife, a button-hook, an ivory tooth-brush case, an ivory nail-brush case, and a tongue-scraper. A small housewife, with thread, needles, and buttons, and a scent-case of white silk, embroidered with the monogram in maroon silk, may also be placed in the pocket. A Havannah brown is a pretty colour also for a gentleman's razor-case.

Fig. 6 represents the case when rolled up, and Fig. 7 the monogram. Fig. 8 is a lady's glove-case, which may be constructed of similar materials.

A Hammock for Tatting, made of Twine.—For those industrious persons who like to carry their work about with them, this little convenience will be much appreciated. In plain double crochet, or tricot, make an oblong, using fine twine—the size must depend on the maker's convenience. Run a fine wire through the two long sides at each edge, taking care to fasten off the ends well, that they may not be in the way or catch the cotton. Take two small curtain rings, about as large round as a shilling, and, in double crochet, work the narrow ends of the hammock, one to each ring. With whipcord plait, in three, a handle, fastening the ends over the rings, and making it long enough to hang on the arm. The hammock is to hold the work, cotton, and shuttle; knitting-pins or crochet needles can be passed through the two rings lengthways. Fig. 9 is an illustration of it.

A Boot and Shoe Tidy.—This is a very useful article in a bedroom, and it is simple to make. Cut a very large circular piece of stout brown holland, and bind it all round with scarlet braid. Then divide it exactly in eight pieces by folding it very carefully, and creasing the folds strongly by passing a hot iron over them. Open it, turn the ends nearly to the centre, and stitch them securely. Fasten a looped string in the centre, and hang it on a horse or other convenient place. Fig. 10 shows its appearance when complete. It has eight pockets for boots, shoes, goloshes, and clothes-brush. In cutting out the circle, it must measure across

four inches over the length of four pairs of boots. It is stronger if made of double holland, in which case the two rounds must be tacked together, with a tack in the form of a cross, before folding them.

BRITISH OTTO OF ROSES.

TAKE any convenient quantity of the petals of fragrant flowers, such as roses, jasmine, and others of the same season, with a small quantity of sweet-briar, and mignonette; the rose-petals exceeding in quantity that of all the other flowers.

Spread the petals on a layer of cotton which has been dipped in the finest Florence or Lucca oil: sprinkle over them a very small quantity of salt finely pounded.

Lay over the flowers another sheet of cotton, and on it place more flowers and salt as before; over them place another layer of cotton dipped in oil, and on it lay more flowers and salt; repeat until a china vessel or wide-mouthed glass bottle be full. Tie over tightly a bladder, and place the vessel in the sun—and if under a garden forcing-glass it will be all the better. In about fifteen days remove the bladder, and squeeze the mass, when a fragrant oil will be expressed—nearly equal to the real and high-priced otto of roses.

The bottle into which the flowers and cotton are squeezed must be immediately corked up. If not squeezed into a bottle, the oil must be instantly bottled and well corked; but a bottle with a glass stopper will be the best kind to use. Tie over the cork or stopper a piece of the bladder, and over that white kid, to prevent evaporation.

NEW SANITARY KITCHEN-WARE.

AT the Health Exhibition at South Kensington in 1884, a silver medal was awarded for a new kind of "Sanitary" Saucepan and Stew-pan, which was also used throughout in the School of Cookery and by the refreshment contractors. Both the purveyors and instructors agreed in speaking of the new ware in the highest terms. These utensils are stamped out of seamless thick steel plate, which is then thickly tinned, inside and out, planished and burnished. They are equal in every respect to copper tinned, far superior in every way to the well-known white-enamel ware, since they can never become burst as that very often does, and can never become injurious to health as copper ware is when the tinning is worn off, necessitating a considerable outlay for re-tinning, or else poisoning the contents with deleterious copper salts. On the other hand, the cost does not very greatly exceed that of good cast-iron utensils, is less than that of wrought-iron, and only about one-third of that of tinned copper. The substantial character of the vessels is equal to any of the kinds just mentioned, and quite different to that of even the thickest block-tin goods, while there are no soldered joints. With fair wear they are practically indestructible, but can be re-tinned if necessary, and are not liable to fracture by violence like cast-iron utensils. These advantages will make the new sanitary ware a real advance in the modern kitchen.

Fig. 3.

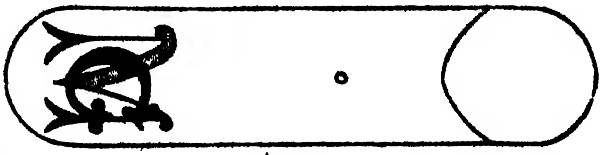


Fig. 2

Fig. 1

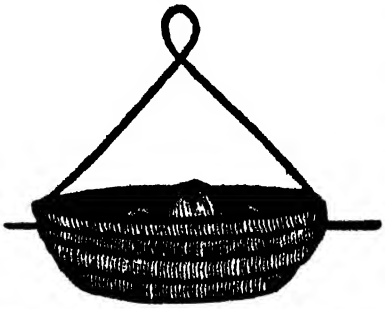


Fig. 9.

Fig. 8.

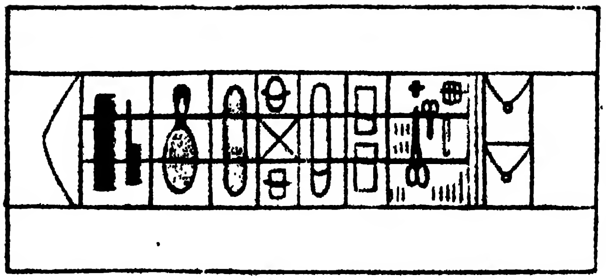


Fig. 5

TOPOGRAPHICAL MODELS.

LANDSCAPES or rural subjects are very prettily modelled in cork, as it may be so easily cut into any form, and is light; but plaster of Paris, for topographical modelling, may be used with equal success.

To make a model of a country, with its mountains, towns, valleys, woods, &c., about eight inches to the statute mile will be a moderate scale. The model should be made first in clay; a mould of various parts is then taken in gutta-percha, rendered soft by dipping it into boiling hot water, and these parts then cast in paper cement.

To make paper cement for modelling: boil paper in water until it becomes a smooth paste; then add an equal weight of sifted whitening and fresh size; boil these ingredients until they become a firm paste.

When the different parts of the landscape are formed, they are to be joined together with the paper cement, thinned by the addition of a little thin glue. The towns are made of cork, cut into the form required, and the houses marked out on it with colour and varnish; church steeples are made of cardboard or starch-paste; sand and fine earth, powdered moss, &c., are sprinkled over a wash of glue to represent paths and fields, pieces of looking-glass for water, and moss fixed on covered wire to form trees, woods, and hedges. Rustic portions of models are made of wire twisted, and covered with gutta-percha.

THE HOUSEHOLD MECHANIC.—XXXIX.

PAINTING (*continued from Vol. II., p. 349*).

A KNOWLEDGE of any art is imperfect unless coupled with competency to judge of the tools and materials required for the execution of that art. In the case of the painter this remark is especially applicable, as extraordinary facility exists for adulterating, and rendering spurious, paints, colours, oils, and brushes, which facility, we are very sorry to say, is too greatly taken advantage of by the unscrupulous trader, and it is a circumstance of rare occurrence for the non-professional painter to get hold of unadulterated paint, colours, and oils, or genuine brushes. This, however, is not the only reason why the painter should understand the materials and tools he has to work with. It is requisite that he should know how to regulate his proportions of oils and driers in accordance with the season of the year, the temperature of the apartment, the nature of the paint or colour with which they are to be mixed, and the kind or condition of the plaster or wood upon which the paint is to be applied. He must be able, too, to exercise judgment in the use of his colours, and know which may be best employed under special circumstances, and which will unite to form any colour he may require. Different brushes, moreover, must be used for different purposes, and of the numerous kinds manufactured for the painter, it is desirable, or rather absolutely essential, that the amateur painter should know how to select such as will best answer the purposes of the class of work upon which he may from time to time be engaged. It will, therefore, be our purpose, in this and succeeding chapters on this subject, to give the reader an insight into the general nature of paints, oils, colours, and brushes, and how to apply them to the several purposes for which he may have occasion to require them.

Paint.—Paint, which is a combination of oil and colours, with whitelead or oxide of zinc (called zinc-white) for a basis, is divisible into four, and sometimes five, parts:—1. Oil—linseed or poppy oil is generally employed; the latter of which is extensively used in Paris, although not much in this country. 2. The basis—whitelead, zinc-white (*alias* white zinc), flake-white, Nottingham white, Cremnitz white, Paris white, silver-white or water-white, the first being generally used. 3. Drying oils, which consist of litharge or protoxide of lead, sugar of lead, peroxide of manganese, white vitriol or copperas, ground up or boiled with linseed oil. 4. The oil or spirit of turpentine (commonly called "turps"), generally employed to a greater or less degree in the mixing of paints. 5. The colouring matter, derived from the mineral or vegetable kingdom, except in the case of white paint, when the basis, whitelead or zinc-white, is in itself the colour. The terms "wet" and "dry" applied to paint, require explanation. When paint is said to be *wet*, it is meant that the slightly viscous fluid is freshly laid on; when it is said to be *dry*, is meant that it has become sufficiently hard not to receive an impression by pressure with the finger, and will not rub off by the touch. The change in paint, however, from wet to dry, is not produced in the manner usual when these terms are employed—viz., the evaporation of some volatile liquid—but is owing to the absorption of oxygen from the air. This may be proved by putting a piece of freshly painted wood in a vessel filled with oxygen, and it will be found to dry in a third the time that a like piece placed in a confined chamber will do. By the drying or siccative properties of a paint or oil, therefore, is meant its power of absorbing oxygen—a quickly drying paint absorbing it more readily than one which is slow in drying (commonly termed "a bad drier"). With regard, therefore, to drying-oils and driers, the solidification of the paint does not depend solely upon them, as all the ingredients of paint are capable of absorbing oxygen, and the combination of them effects the drying, the driers (properly so called) only accelerating the speed at which the absorption takes place. There are many conditional circumstances to be considered in judging of the drying properties of a paint, and the painter should therefore make experimental observations for himself. Whitelead paint, as a rule, dries quicker than other paints, yet it will be slower in drying on some surfaces than other paints would be on the same surfaces. As we stated at the outset, the temperature of the atmosphere and season of year have much to do with the drying, and consequently with the mixing of paints. At a high temperature, say at 82° Fahrenheit, the drying or oxidation of paint proceeds much more rapidly than at a low temperature, say 60° Fahrenheit. The painter must therefore be guided by the temperature with regard to the proportion of drying-oil he should admix with his paint. In winter time a proportion of from three to nine per cent. of drying-oil should be added, while in summer from a half to two per cent. will be found sufficient. Linseed oil is itself an absorber of oxygen, but the absorption is greatly increased by the addition of some manganese drier. The absorption by the two combined has been proved to be four times greater than by the two separately. Paint composed of white zinc has been found to take above three times the time that whitelead would do, and that composed of white antimony nearly three times longer than white zinc. The nature of the surface designed to receive the paint has also much to do with the drying of paint. It is a well known fact that paint takes considerably longer to dry when applied to new wood than it does when applied to a surface which has been before painted. This is occasioned by reason of the oil penetrating the pores of new wood and retarding its solidification, so that when the paint on the surface appears dry, that underneath remains moist and pasty. It is thus that paint dries so much quicker on a painted surface than it does on one of new wood. While the cause we have just stated for this difference is nearly correct, it may not be quite so, as paint itself is rendered more drying by the effect of time and exposure to the atmosphere—that is, it has absorbed a full amount of oxygen. The great effect apparently produced by the action of driers upon a porous surface or that of new wood, is attributable to the driers covering the surface, so as to prevent the oil sinking into the pores. In like manner, as quickness in the drying of paint is increased or retarded by the surface being of new wood or that has been before painted, so it is equally affected by different metallic or other surfaces upon which the paint may happen to be applied. A surface of oak, hitherto unpainted, is a very long while in drying; glass, too, is slow in allowing oil or paint to solidify.

The paints employed by the painter should be, as a rule, lead paints, to which colour has been imparted by the use of some of the metallic oxides. The objection to the use of whitelead, or carbonate of lead, is the baneful and deadly effects produced upon the painter by its continual use; but there is no doubt that it possesses a decided advantage over all other bases for paint, inasmuch as it virtually combines with the oil, so that a fine plaster covers the surface of the wood or other material painted; while in the case of white zinc, which is the only other basis at present discovered which has come into any kind of general use, it does not combine so well with the oil, remaining, as it were, mechanically suspended in it, and, consequently, washes away so soon as the coat of oil begins to vanish and be dried up. Whitelead, too, has been proved to go farthest in covering the greatest extent of surface, while white zinc holds the second place. White zinc, nevertheless, in addition to being less detrimental to the health of the painter, possesses one advantage—which is, that it does not tarnish or blacken when exposed to the action of sulphide of hydrogen. The

oxide of bismuth is said to form a very good basis for paint; but, owing to the scarcity of the metal, it is not worth consideration. The oxides of copper, in various forms, are much used in combination with arsenic and other substances in the formation of greens of the most brilliant description, as also in the production of several valuable blues. From the oxides of iron are produced browns, yellows, and blacks. By calcining spathic iron ore, a beautiful black is produced—the white carbonate of iron, a black magnetic oxide which mixes well with oil, and forms a very durable paint for out-door work. Calcined hæmatetic iron ores produce very permanent colours, which withstand the action of the weather to an unusual degree. Anthracite is extensively manufactured as a black paint, and is used ground to an impalpable powder mixed with good drying-oil. It is chiefly obtained from the well-known culm measures of North Devon, where it is manufactured at Bideford.

There is so much both of interest and importance to be said on the subject of paint, that for the present we shall pass to several of the main branches connected with it. First, however, we shall add a few particulars respecting the action and use of turpentine.

Turpentine is commonly employed in the mixing of paint, for the purpose of diminishing its viscousness and facilitating its application. The chief action of turpentine upon the paint is to cause greater speed in drying, which speed is very greatly increased if the turpentine has been previously exposed to the air, from which it will have extracted a great amount of oxygen. If, however, the oil as well has been exposed to the air, the speed in drying will be further increased, and still further by the basis—whitelead or white zinc—having likewise been exposed. Should the work be required to be plain, neither polished nor varnished, and to last long, a small proportion only of turpentine must be used; but if required to be polished a large proportion of turpentine should be used, and if varnished, as much as will not render the paint too fluid to work with.

The grinding of paints will be treated separately in a section set apart for that purpose.

ADULTERATION OF COFFEE.

OF chicory, the substance most used for this disgraceful purpose, we have already spoken in page 376. vol. i. It is only necessary to say in this place that it contains *none* of the valuable properties of coffee, and can therefore in no sense serve as a substitute for it. The other adulterations are made with raspings of loaves, stale sea biscuits, and other refuse farinaceous matter; roasted wheat, and other corn; acorns, carrots, mangold-wurzel, lupin seeds, oak bark, baked horse or ox-liver, and mahogany or other sawdust. These are chiefly for increasing bulk. Other substances are used for giving colour, such as reddle, Venetian red, and especially black-jack—the latter, notwithstanding its formidable name, is nothing more than burnt sugar. A preparation called "coffee colourer" is even sold in tins, and used extensively by retail dealers and the keepers of coffee-houses, for giving a fictitious appearance of strength. This bit of adulteration will show to some extent how the public and the revenue are defrauded in coffee, but we have still reason to congratulate ourselves that in this article we are only cheated, and not poisoned at the same time.

The following methods by which adulterated coffee may be distinguished are given by Dr. Muter in the *Food Journal* for April, 1870:—"1. Take the packet of coffee as it comes from the grocer's in your hand; and, having given it a good squeeze, lay it gently on the table and open it. If the contents be found adhering together in a cake, the sample is not fine. 2. Drop gently a teaspoonful of coffee on the surface of a glass of water, and observe if any of it sinks immediately, if so, it is bad. Let the whole be now slightly stirred, and notice the colour imparted to the water; if this be a decided brown tint, then the coffee is adulterated, most probably with chicory or burnt grains of some kind. 3. Make an infusion of coffee in the usual way, pour some into a cup, and let it stand till cold; if a skin or scum should form on the surface, there is reason to suspect baked animal matter, such as horse's liver."

The berries are not the only part of the coffee-tree of which use can be made. In Sumatra the leaves, roasted in the same manner as tea, and reduced to a powder, are so generally used by the natives as an infusion, as to be regarded as a necessary of life. A patent was taken out some years since by a Dr. Gardner of Ceylon for a method of preparing the leaves for the English market, and attempts were made to bring them into use, but with no great success. We have not, as yet, had an opportunity of tasting the drink made from them, but it is said to contain most of the properties of the coffee made from berries, and to be more agreeable to the unsophisticated palate than tea. Gathering the leaves is, however, found to damage the plants and to check the production of the more valuable crop—the berries—and for that reason it is not likely to become popular with the coffee-planters, which fact will prevent the article being imported in such quantities as to allow of its general use.

THE SUPPER-TABLE.—II.

AT holiday seasons tastefully-arranged suppers are frequently desirable, and it occasionally happens that a supper has to be extemporised in consequence of the unexpected arrival of friends. Now, to prepare and produce a supper without notice is a more difficult undertaking than spreading the table on due notice.

Where there are cook and housekeeper the difficulty may certainly be the more easily overcome, as the mistress has only to make them acquainted with the number of the guests, and her own ideas on the subject of dishes, and the supper will be accordingly served at the appointed hour; but where there is only a cook, the mistress will have to exert her own ingenuity to produce a repast suitable to the occasion.

Supper for six or eight persons may be required, in two or three hours, and moreover it is necessary that the supper be somewhat substantial.

Seven dishes at least must be prepared, and of what are they to consist?

The next question will be made to the cook, "What have you in the larder?" and the probable answer will be, "Cold fowl, ham, tongue, game, and cold roast meat." These will do very well; with a few lighter viands and sweets to make up, to be either prepared or purchased at the confectioner's.

The cloth laid, in the centre is placed a glass flower-stand, filled with fresh cut flowers, and around the flower-stand, on a silver épergne, or in small, cut glass plates are arranged custards and jellies.

In one dish is cold turkey or fowl, either cut up and laid on the dish garnished with flowers or parsley, slices of lemon and beet-root; or after having been cut up, the joints again united with white ribbon to give the appearance of a whole bird. This is a good plan to save the trouble of carving at table; as cutting the ribbon at once separates the joints. The poultry may be served whole if preferred, although for a *cold* supper it is usual to have the dishes served ready cut up, laid nicely in the dish, and garnished.

In another dish we have ham, either whole or in thin

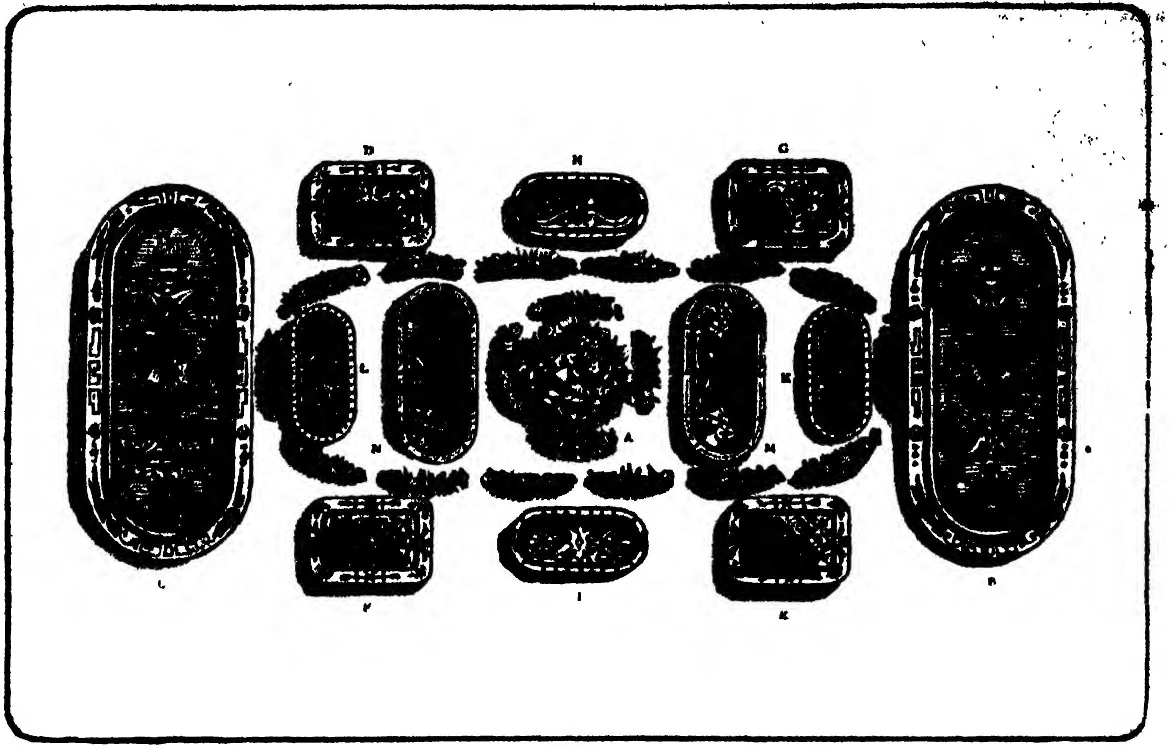


Fig. 1.

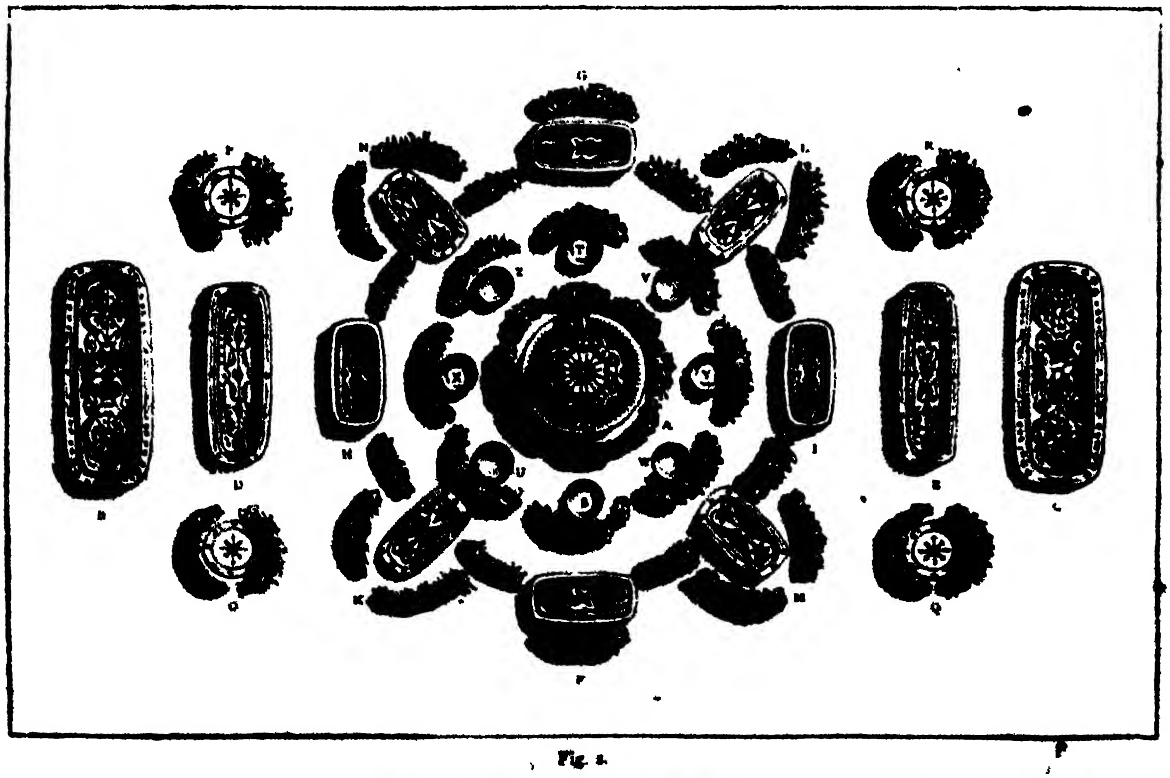


Fig. 2.

slices; this must depend on taste and circumstances. Another dish will contain sandwiches. A dish of lobster, a dish of game, and a dish of tongue will be suitable. On each side of the glass flower-stand will be placed jelly and blanc-mange, or cream in moulds. The effect of a table arranged in this way will be very attractive, considering the familiar materials with which the result is produced.

This bill of fare for a supper is simply supposed to be

got up at a short notice, and would furnish a tolerably good repast; but if to these dishes were added four, six, or eight more, it would supply a supper for twelve or fourteen guests on a more elaborate scale.

The supper-table is represented in Fig. 1 as decorated with the new floral glass dishes, and in the centre at

A, Glass flower-stand.
B, Cold turkey or fowl.
C, Ham.
D, Sandwiches.
E, Lobster.
F, Game.
G, Tongue.
H, Collared meat, glazed and garnished with savoury jelly.
I, Raised pie.
K, Mashed potatoes.
L, Potatoes soufflées.
M, Salad.
N, Lobster salad.

Fig. 2 shows a table arranged for a larger number of guests on a more elaborate scale; and in this case it may be suggested that a dozen or more friends have been invited to a party or a carpet dance; or a friendly meeting of some kind calls for the exercise of hospitality on a larger scale than that afforded by the table (Fig 1). There has been more time to prepare the viands, pastry, and sweets, and we can introduce a greater variety of dishes.

In the centre of Fig. 2 may be placed a glass flower-stand filled with choice flowers and ferns, A; around it are placed custards and sweets in small, cut glass dishes. In dish B we have cold fowl, cut up and laid tastefully in the dish, the joints alone consisting of the wings (cut in half, legs also), the breast and merry thought, garnished with flowers, or curled parsley, lemon, and beetroot, the latter to be previously boiled, peeled, and cut in thin slices, the round divided in two. The lemon should also be cut in thin slices, and the peel notched round. The garnish is very pretty made of small sprigs of curled parsley, beetroot, and lemon, laid alternately round the dish, or the parsley may be laid in the dish, and lemon and beetroot upon it.

A, Glass flower-stand.
B, Cold fowl.
C, Ham in thin slices, garnished to match the fowl.
D, Raised pie.
E, Collared glazed meat.
F, Lobster.
G, Oyster.
H, Cold pheasant.
I, Cold partridge.
K, Potatoes soufflées.
L, Browned mashed potatoes.
M, Lobster salad.
N, Plain salad.
O, Patties, veal and ham.
P, Savoury patties.
Q, Oyster patties.
R, Lobster patties.
S, Ham sandwiches, garnished.
T, Tongue sandwiches, do.
U, Pat of butter.
V, Cheese cut up in glass dish.
W, Lemon jelly.
X, Cake.
Y, Cakes.
Z, Blanc-mange.


Fig. 11.


Fig. 12.

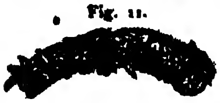


Fig 3


Fig. 10.


Fig. 6.

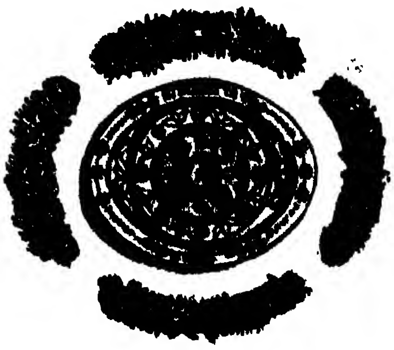


Fig. 5.

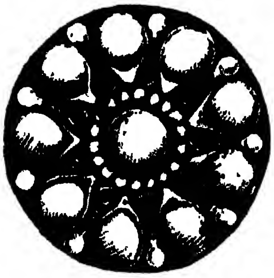


Fig 4.


Fig. 9.


Fig 3.


Fig. 7.

Great attention should be paid to the due arrangement of china and glass dishes, flowers, decanters, &c., as they add greatly to the grace and beauty if well placed; if otherwise, the most costly viands look uninviting, and the effect is lost. Dishes containing the same kind of viands should be placed opposite to each other or at angles, never side by side; cakes should face cakes, fruit, fruit, and so on. Colours to contrast should be studied, the table should not be over-crowded nor laden with dishes of one size; but to produce a graceful effect the dishes should blend in colour, and consist of various sizes and shapes in china and cut glass. The arrangement of dishes is alone represented (Fig. 2). A small, cut glass water-bottle should be placed at the side of each plate to the right hand—knife, fork, and spoon, table-napkin tastefully folded on the plate, holding a roll. Saltcellars should be placed at short distances from each other, and if silver they add

to the elegance of the table. Table and dessertspoons with knives and forks, are to be placed by the dishes as required, and two or three wine-glasses of various sizes, with a tumbler to each person.

For a wedding breakfast, the arrangement of the table and style of dishes would be very similar to those represented at Fig. 2; the number and kind of dishes being chosen according to taste and circumstances. The bride-cake would take the place of the flower-stand in the centre of the table, surrounded by bouquets; and tea and coffee would be served at top and bottom of the table. At Fig. 3 is represented a vase of flowers suitable for the top of a glass flower-stand, or to fill up some part of a table. Fig. 4 is an ornamented cake or galette; Fig. 5, a dish surrounded by the new floral glasses; Figs. 6, 8, 10, 11, and 12, the new glasses filled with flowers; Fig. 7 shows the style of arrangement of these flower-dishes down the sides of a table; Fig. 9, a lamp surrounded with them, to be either placed in the centre of the table or sideboard.

HOME-MADE WINES.—IV.

GRAPE, GOOSEBERRY, CURRANT, ORANGE, GINGER, ETC.

Sparkling Grape Wine, or English Champagne.—Remove the stalks and decayed grapes, bruise the fruit, and to every pound put one quart of cold water; let it stand in a convenient vessel three days, stirring it twice or three times a day; then strain, and to every gallon of liquor add three and a quarter pounds of lump sugar; dissolve this as quickly as possible, and put the whole at once into the cask. Ten days afterwards put into the cask to every five gallons of wine one pint of brandy and a quarter of an ounce of isinglass. This should be bottled in champagne bottles, when the vines are in bloom the following summer, and the corks will require to be tied or wired down. The grapes for making it should be tolerably, but not fully ripe.

Sweet Grape Wine.—Pick the grapes as above, crush and strain, and to each gallon of juice add three and a quarter pounds of lump sugar; put it immediately into the cask, and bottle when the vines bloom the following summer. The grapes should be fully, but not over-ripe.

Sparkling Green Gooseberry Wine.—Pick out the defective gooseberries, remove the stalks and tails, and bruise the fruit in such a manner as not to crush the seeds; to every pound put one quart of water. This must be let stand three or four days, and be stirred three or four times a day; then strain, and to every gallon of liquor add three pounds of coarse loaf sugar. When this is dissolved put it into the cask, and to every five gallons of wine add one pint of brandy and a quarter of an ounce of isinglass. The wine will generally be fit to bottle in five months, but if it be found too sweet, and not clear, it may be allowed to remain longer. The gooseberries should be taken when fully grown, but before they begin to turn ripe.

Ripe Gooseberry Wine (Still).—Pick and bruise the fruit in a convenient tub or other vessel, and let it stand twenty-four hours; then strain, and return the skins and seeds to the tub, and pour on them tolerably hot water, in the proportion of one quart to every gallon of gooseberries; let this stand twelve hours, and then strain, and mix the water with the juice. To every five gallons of this liquor add twelve pounds of lump sugar; let it ferment well in the tub, then skim off the head, and draw off as much of the liquor as will run clear; put this in the cask, and add to every five gallons two quarts of brandy. To be in perfection it should not be bottled for five years, but it may be used, if necessary, at the expiration of twelve months.

Currant Wine.—Bruise ripe currants with their stalks, and to every fourteen pounds put eleven quarts of water. Let them stand twenty-four hours, then strain, add one pound of lump sugar to each pound of currants, and stir twice a day for two days; afterwards put the liquor into the cask with a pint of brandy to each fourteen pounds of fruit. Three quarts of raspberries or strawberries to each fourteen pounds of currants is considered an improvement. To *white currant* wine some persons add a few bitter almonds, pounded. Currant wines should not be bottled for twelve months, and will improve if left for a longer period. Ripe gooseberry wine may be made by the same formula, if desired.

Strawberry or Raspberry Wine.—Bruise three gallons of either fruit, and add to it an equal measure of water; let them stand twenty-four hours; then add two gallons of cider, eight pounds of lump sugar, the rind of a lemon cut thin, and one ounce of powdered red tartar. Put into the cask with one gallon of brandy. For raspberry wine a gallon of currant juice, substituted for a like quantity of water, will be an improvement.

Damson Wine.—To four gallons of damsons pour four gallons of boiling water in a tub or other convenient vessel; let this stand four or five days, and stir it every day with the hand; then strain, and to every gallon of liquor add three and a half pounds of lump sugar; when this is dissolved put the whole into the cask. It may be bottled in twelve months.

Cherry Wine.—Same as damson, but as cherries are sweeter, three pounds of sugar only need be used to the above quantity. Many persons like the flavour of the kernels in damson and cherry wines: to give this, one-eighth of the stones should be broken, and infused with the fruit.

Sloe Wine.—Same as damson, but four pounds of sugar should be used instead of three and a half to the above quantity. A considerable length of time should be given to sloe wine in the cask, and it will become little inferior to port.

Rhubarb Wine (Sparkling).—Cut five pounds of rhubarb into short pieces as for tarts, and pour on them a gallon of water; let this stand five days, and stir each day; then strain off, and to the liquor add four pounds of lump sugar. When this is dissolved put it into the cask with one lemon and one pennyworth of isinglass. This will be fit to bottle in six months.

Apple Wine.—To a gallon of cider (new from the mill) add a pound and a half of moist sugar, a quarter of a pound of raisins, and half a lemon; put in the cask as soon as the sugar is dissolved. This will be fit for use in two months.

As the fruits or other vegetable substances on which the foregoing wines are based contain a natural ferment, they will undergo that process spontaneously, and require no yeast. Those that follow will require yeast to make them ferment.

Ginger Wine.—To six gallons of water put eighteen pounds of lump sugar, the rinds (thinly pared) of seven lemons and eight oranges, and eight ounces of ginger; boil the whole for an hour, and let it cool. When lukewarm add the juice of the above fruit and three pounds of raisins. Work with yeast, and put it into the cask with half an ounce of isinglass. This will be fit to bottle in six or eight weeks.

Orange Wine.—Boil thirty pounds of lump sugar in ten gallons of water for half an hour, taking off the scum as it rises. When the water has become nearly cold, put to it the juice of 100 Seville oranges, and the peel of fifty; ferment with half a pint of yeast on a toast; let it stand twenty-four hours to ferment; then put it into the cask with one quart of brandy. When fermentation ceases stop it close for three months; then rack it off, and put it again into the cask with one quart more brandy and one and a half pounds of raw sugar. This will be fit to bottle in twelve months.

A WEDDING BREAKFAST.

[To face page 158, Vol. III.]

COOKERY.—LVII.

THE MANAGEMENT OF PICKLES—HOT INDIAN PICKLES—HOT SAUCES.

As far as possible it is well to boil the vinegar for pickles in stoneware jars rather than in metal vessels. The hot vinegar dissolves the tin from iron pans, and a portion of the substance from brass and copper ones, which is unwholesome. Stoneware jars or glass bottles should always be used for keeping pickles, and never common red-glazed earthen jars; these latter are glazed with lead, and this, when dissolved by the acid of the vinegar, is poisonous, and in several Continental countries the use of such vessels in cookery is forbidden under severe penalties. It is essential that green pickles should be well closed. Bottles are best corked and closed with wax (for making which a receipt will be found at page 195, vol. i.), and for tying down jars, bladder, wash-leather, and gutta-percha tissue are good.

Green pickle jars should be examined occasionally, and if mould is found to have accumulated, and the vinegar to have become insipid to the taste, it should be poured away, and new vinegar which has been well boiled with a little spice and allowed to cool, poured on. By attending to these directions pickles may be kept good for many years, and will rather become better than worse. Walnuts especially always improve after several years' keeping, and to be in perfection should never be eaten new.

In vol. i., pages 195 and 219, we gave valuable receipts for most kinds of green pickles; we append one for

Pickled Lemons.—Take small lemons with thick rinds, and rub them with a piece of flannel; then slit them half down in four quarters, but not through to the pulp; fill the slit with salt pressed hard in; set them upright in a pan for four or five days, until the salt melts; turn them thrice a day in their own liquor until tender. Make enough pickle to cover them of good vinegar, the brine of the lemons, Jamaica pepper, and ginger; boil and skim it; and when cold, put it to the lemons with two ounces of mustard seed, and two cloves of garlic to every six lemons. When the lemons are used, the pickle will be useful in fish and other sauces.

More easily made than green pickles and more generally approved are hot pickles. The following is a good receipt for

Yellow Pickle.—To each gallon of malt vinegar take a quarter of a pound of brown mustard seed, two ounces of long pepper, two ounces of black pepper, two ounces of garlic, one ounce of turmeric, quarter of an ounce of mace, half a pound of salt, and a few roots of horse-radish. Let the salt and spice be well dried, and put them into the vinegar cold. Gather your vegetables on a dry day, strew over them a little salt, and let them stand two or three days, then put them on a hair sieve, either in the sun or by the fire to dry. Put them in a large jar with the vinegar, and let it stand by the fire for ten days; it must not, however, be allowed to become any hotter than new milk.

The above pickle is much relished by those who like very hot things, but for ordinary palates the receipt given below is more confidently recommended.

Indian Pickle.—To each gallon of malt vinegar (cold) add half a pound of mustard, six ounces of turmeric, a handful of salt, and a little grated ginger; boil the vinegar and spices together and let the mixture cool. Boil or scald the vegetables with vinegar—taking care to have among them a little garlic and some onions; put them in your jar, and pour on the pickle. Afterwards put in the jar a bag containing a quarter of a pound of ginger, one ounce of long pepper, one ounce of black pepper, one ounce of cloves, and half an ounce of cayenne.

For general household use this "Indian pickle" is one of the best than can be made. It is well to keep it in two large jars, each of which should hold sufficient for the year's consumption; from one of these the pickle can be taken for eating, while the other is being filled and is getting ready for use. A variety of vegetables may be put in this pickle—French beans, mushrooms, cucumbers, cauliflowers, apples, cabbages, celery, radishes, radish-pods, &c. French beans should be taken when small, and put in whole; cauliflowers should be cut into separate branches; and cucumbers and apples should be cut in slices, or quartered if not too large—if cucumbers are not to be had, vegetable marrows may be used instead of them. Red cabbage should not be used in hot pickles, or it will spoil their colour (as will also walnuts); small white cabbages should be quartered, salted for three days, squeezed, and set in the sun to dry; celery should be cut into three inch lengths, and the green tops should be cut from radishes. The pickle may be made when the earliest vegetables are in season, and afterwards, as other kinds come to perfection. The harder kinds may be boiled in vinegar, and the softer scalded with boiling vinegar, and, when cool, put into the jar. Soft vegetables, such as cucumbers, will not bear boiling, which would make them go to a pulpy mass. When new vegetables are added to the jar, the whole should be well stirred up with a wooden spoon, as the spices and more solid parts of the pickle are apt to settle to the bottom. A metal spoon should never be used either for stirring pickle-jars, or for taking out their contents. The necessity for keeping the jars thoroughly closed is not so imperative with hot, as with green pickles, as they are not apt to go mouldy. It should be remembered that all vegetables for pickle-making should be gathered when dry.

Indian Chutnee.—Take a pint of vinegar, add to it half a pound of brown sugar, and boil them till they become a thin syrup. Then add one pound of tamarinds, simmer gently for a few minutes, and, when cool, strain through a cullender. Then add half a pound of sour apples, peeled and cored, and boil till quite soft; when cool, add a quarter of a pound of raisins (stoned) and two ounces of garlic, both well pounded; and afterwards, two ounces of salt, two ounces of powdered ginger, two ounces of mustard, and one ounce of cayenne. Mix well together, and put into covered jars, which must be allowed to stand by the fire for twelve hours. The longer this is kept the better it will become.

Tomato Sauce.—When ripe take off the green stalks from the tomatoes. Wipe them clean, and place them in a slow oven where they must remain till quite soft. Then work them through a sieve and take out the seeds; and add, to every two pounds of tomatoes, one pint of good white wine vinegar, one dozen chillies, quarter of a pound of garlic, quarter of a pound of shalots shred very thin, one ounce of ground white pepper, and a good handful of salt. Boil all together till the garlic and shalots are soft; then strain it, and skim off the froth, and if too thick add a little more vinegar. When cold, bottle it in wide-mouthed bottles. This sauce may be kept several years, and will improve with age. In addition to the above ingredients some persons put half an ounce of ground ginger.

"Household Guide" Sauce.—By the following receipt a sauce may be made as good for most ordinary purposes as the more expensive sauces, and especially useful where economy is an object. In one quart of good vinegar boil six shalots chopped fine, and twelve cloves; when cold add quarter of an ounce of cayenne pepper, half an ounce of sugar-candy, half a gill of soy, half a gill of mushroom catchup, and half a gill of the vinegar from pickled walnuts. This must be shaken daily for a month, when it will be fit for use, or it may be closely corked up and kept for an unlimited time.

New pickles and sauces are frequently being introduced, and of them we shall speak as occasion serves.

HOUSEHOLD AMUSEMENTS.—XXIV.

BAGATELLE.

THE game of bagatelle is a very interesting indoor amusement, and when well played a good deal of science may be displayed in the game. Bagatelle serves as an introduction to the game of billiards, as draughts does to chess, and they are both good practice for players of either of the more scientific games.

A bagatelle board varies in size from five to ten feet in length, and from eighteen inches to three feet in width; it is lined with blue or green fine cloth; at one end is a semi-circular slip of wood covered with cloth, which rounds the corners; and nine cups, lined with wood, and numbered from one to nine, are sunk level with the cloth of the board. There are nine ivory balls, four of which are white, four red, and one black; a cue and a mace, which are thick long sticks to drive the balls with, and used according to the choice of the players. At each side of the board are small holes, and pegs to mark the winnings.

Four games of bagatelle are generally played in private houses, two of which are played with a bridge placed at the end of the board next the balls.

When the game is played carefully and scientifically, both cue (Fig 3) and mace (Fig. 2) are used, according to the stroke desired to be given; but the mace is generally used by lady beginners, as its broad end more readily strikes the ball, and the sharper end of the cue requires a good aim to touch the ball.

The board (Fig. 1), represents that for the games "La Bagatelle" and "Sans Égal." Large boards are usually placed on firm tables made exactly of the same proportions, and perfectly level, and are sold with the boards; but although the table may be correct, there may be some rise in the carpet or floor which will throw the table out of the level; therefore, especially if the board rests on a dining-table, care must be taken to make the board perfectly level, or the balls cannot run straight and unbiassed. To ascertain if the table is level, a little tube filled with water—a water-level—if placed on the table or board, will show if it is even; a bubble of air floats into the *centre* of the tube when level. Wooden wedges must be placed under the board to level it.

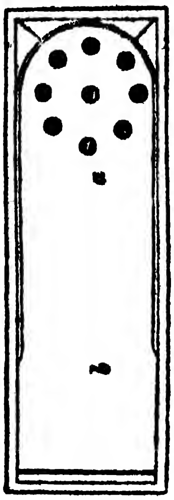


Fig. 1.

Fig. 2.

Fig. 3

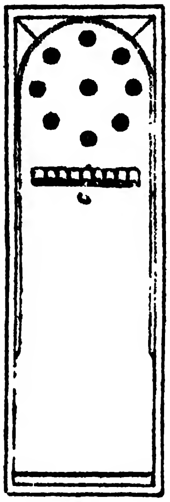


Fig. 4.

Rules for Playing La Bagatelle.—Any number may play the game, and use either the cue or the mace. Each player strikes a ball up the board, and whoever obtains the highest number may lead and take possession of the nine balls. The black ball, which counts for double, is placed on the white spot (*a*) in front of the cups, at the beginning of every round, and must in the first instance be struck by one of the other balls before there can be any score. The striker's ball must be placed on the white spot at *b*, and is to be struck with the mace or cue at the black ball so as to drive it into one of the cups, and the rest of the balls are to be played up in the same manner, either at the balls outside the cups, or for the cups without touching the balls. Any number of rounds may be played for the game, as agreed upon at the commencement. The player who scores the largest number wins the game. The figures in the cup are to be scored at the side, as the balls fall in. Any ball rebounding beyond the centre, or driven off the board, cannot be used again during that round. In playing this game scientifically, aim must be carefully and steadily taken; success will depend on the strength of the blow, and the part of the ball struck. If one ball is simply driven against the other without taking aim, they will in all probability run one after the other round the board and bound over it. At the commencement of the game two balls will be one before the other at *a* and *b*, and a gentle stroke will be the best to drive the black ball into one of the cups; if one of the balls drop in, another ball must be placed at *b* and aimed at the one on the board, wherever it stands: sometimes the aim must be made at the side of the board, causing the ball to rebound gently against the other and so send it into a cup; sometimes the side of a ball must be struck so as to send it in an opposite direction; sometimes, if a ball is standing near a cup, the most gentle stroke possible will drive the ball against it and send it in.

The game, to be scientifically played, requires as much practice and study as billiards; but bagatelle is frequently played very unscientifically—the balls are simply struck and sent into the cups hap-hazard, and the player does not calculate the effect of the stroke on the ball, or know where to strike in order to send it into any particular cup; but the same as for billiards or croquet, practice will be required to play well.

Sans Égal is played by two persons only, and twenty-one or thirty-one counted wins the game. The leading player is chosen as in La Bagatelle, and he takes either the four white or the four red balls, and places the black ball at *a*, and drives one of his balls up the board; whether he succeeds or not in sending a ball into a cup, the other player drives one of his balls up the board. In the same way the first player sends up another ball, the other player does the same, marking with the pegs the numbers of the cups into which the balls fall, until twenty-one or thirty-one be counted. The player who holds the black ball counts it towards his game, as also all that he may hole of his adversary's. The player who marks the greatest number of points in each round takes the lead in the next.

The game *Mississippi* is played with a bridge (*c*, Fig. 4), each arch of which is numbered from one to nine, and through the arches the balls are driven. The bridge is placed close up to the circle of cups, and to decide, the first player strikes one ball only through one of the arches of the bridge, and he who obtains the highest number begins the game, and plays the nine balls in succession. Every ball must be played so as to strike the side of the board previously to entering the arch; otherwise the number reckons for the adversary. The game consists of as many points as may be agreed on.

Trou Madame is played in the same manner as the preceding, only the balls are played straight from the end of the board through the arch without touching the side of the board.

The Game of Bagatelle Scientifically Played.—The preceding directions apply to the most simple and usual methods of going through the amusement, but with a little careful study it may be made almost as scientific as billiards, which it so much resembles; and a few rules for a scientific game of bagatelle will now be given.

A combination of science and chance forms one of the most attractive features of this interesting game, which also combines a certain amount of exercise of mind and body. It is not a mechanical but a mathematical game, since to play well it is necessary to know that certain results follow certain ways of striking the ball, as before mentioned; and those who play should endeavour to understand the real principles of the game, and carry out rules which are governed by scientific theories, and not by chance.

First, then, to play bagatelle well and gracefully, choose a cue suited to your strength, the length about reaching to the chin, and the weight sufficient to allow of a good, hard, firm stroke being made with it, yet light enough to enable the player to use it freely.

The action of the mace is more simple than that of the cue. Previous to striking with the mace, its broad extremity is to be adapted very accurately to the centre of the ball, and the stick being then carried up even with the right shoulder, the mace and the balls are to be at once pushed onwards by the same effort, and without any sudden impulsive force. To strike the ball with the mace, instead of to push it forward, is considered a "foul stroke." To use the cue, stand firmly at the end of the board in an easy, graceful attitude, with the left foot a little advanced, and the head slightly inclined forward; but do not stoop (see Fig. 5). Avoid jerking the cue suddenly, as that will cause the ball to jump forward in a direction contrary to that which you intended. Fig. 6 shows the position of the left hand.

Fig. 5.

Fig. 6.

Having learned how to strike a ball, the learner should practice first with one, next with two balls; and when the player can strike any particular spot on the cushion, he may commence a game. But there are yet many important facts to bear in mind. The accuracy with which any and every stroke is made, depends entirely on the correctness of the eye of the player, and the capability of his hand and judgment acting in unison. A nervous, undecided player is never a good one, and many a game is lost through fear of an antagonist's superior skill, or carelessness, want of steadiness of purpose, or anxiety. If a person desires to play the game well he must begin with a firm determination to do his best; and with practice and perseverance he will succeed.

DOMESTIC MEDICINE.—XXXVIII.

INFLUENZA.

We have said something concerning the nature and seriousness of this disease, under the head of "Catarrh." It is like a bad common cold, attended with extreme depression of the system. It prevails as an epidemic at times on a most extensive scale, affecting a very large proportion of the population, and proving more dangerous to the old and those affected with bronchitic or asthmatic complaints. In some epidemics, as many as nine-tenths of the population have been affected with the disease. It spreads over a country, or even a continent, in a very short time: in this respect differing from cholera, as well as in being much less fatal. Cholera spreads by way of personal communication of some kind, or through drinking water. Influenza seems to spread with the air or wind. The great recent epidemics of severe influenza were in 1833 and 1837.

Causes.—It is impossible to assign the exact cause of influenza. It prevails in connection with almost every variety of season. It has been attributed to a deficiency of ozone in the atmosphere, or to an alteration in the electrical conditions of the earth. But there is nothing but conjecture in these theories.

Treatment.—Influenza occurring epidemically needs rest, warmth, and support. In severe cases, and in old people, and where there has been any previous disease, a doctor is necessary. (See "Catarrh.")

INSANITY.

This subject is one that requires some popular statement, though it does not admit of being fully discussed in a popular way. We are, probably, too much in the habit of thinking that there is a sharp line of demarcation between insanity and sanity. It is really difficult, in many cases, to say that *this* man is perfectly sane and that *that* man is perfectly out of his mind. A very eccentric man may appear to many people to be mad, whereas he is perfectly within his own mind, so to speak. He never was quite like other people, and does not pretend to be. He probably regards them as creatures of habit and convention. He is a law to himself, and thinks independently. An intensely original man, or an intensely earnest man, in like manner, may look very insane to ordinary people about him, who are too lethargic, apathetic, or stupid to feel as he does. John Dryden has said—

> "Great wits are sure to madness near allied,
> And thin partitions do their bounds divide."

Still there is no true connection between wit and madness. Shakespeare, though he seemed to have the thoughts of all men in his mind, was a thoroughly sound sensible man. Charles Lamb, whose case in all its relations rather reminds one of John Dryden's lines, speaking of the sanity of true genius, says:—

> "So far from the position holding true that great wit (or genius in our modern way of speaking) has a necessary alliance with insanity, the greatest wits will ever be found to be the sanest writers. It is impossible for the mind to conceive of a mad Shakespeare. The greatness of wit by which the poetic talent is here chiefly to be understood, manifests itself in the admirable balance of all the faculties. Madness is the disproportionate straining or excess of any one of them."

Every man should desire to have a healthy body in a healthy mind—*mens sana in corpore sano*. This he should aim at without thinking too much of the subject. Many men and women fail of health because they think too much about themselves to be healthy. Self-feeling is

a bad thing. The constant habit of studying one's own feelings, sensations, and moods, is a thing to be condemned from every point of view. It is wrong morally and physically. Divines have sometimes erred in encouraging too much introspection, too much looking inwards, too much dissection of the feelings and desires. If the feelings and desires are good and right, the effect of looking too much into them is apt to be vanity and self-conceit. If they are wrong, the effect has often been unduly depressing and distressing. Doctors have often, but not so frequently, made the same mistake, and set people too much upon the study of the minute particulars of their own health, looking at their own tongues, feeling their own pulses, watching, like a timekeeper, the action of their own bowels, and closely observing every stray feeling of the system from hour to hour. Such a style of self-study is to be condemned alike by moralists and physicians. Men are rather to take their health for granted, till there is some obvious failure or fault in it.

This remark especially applies to what is scarcely insanity, but closely allied to it—*Hypochondriacism;* which we may define as the morbid study of oneself, one's "miserable" self. There is a cheerful healthy side of us which may be studied to any extent. And there is the miserable, complaining, dissatisfied part of us which should not be studied. It is this part which the hypochondriac studies, and only this part; about this he speaks to his friends, and he consults all the doctors he meets, and reads all the books he hears of, until he can do nothing but think and talk of his own sensations.

Treatment.—If any reader of these papers is so afflicted, let him think less about himself, and more about other people. Let him realise that his disease is a form of *selfishness;* that this world is too full of beautiful objects to make it right for him to spend so much time in thinking of his own sensations, or reasonable in him to expect other people to care much about them. If he has any palpable trouble, such as a doctor will recognise, let him go to a doctor with it, and do what the doctor tells him to do. But if it is a thing which doctors think little of, let him dismiss it from his thoughts, take exercise, do good, cultivate his mind, cultivate the love of the cheerful and the beautiful, and the chances are he will be as happy and healthy as other men, and have the sane mind in the sane body.

"Throw but a stone, the giant dies."

In another paper we shall enter on the consideration of Insanity in its more advanced form.

ODDS AND ENDS.

To Prepare Caramel or Burnt Sugar.—This substance, which is very extensively used to colour brandy and other liquors, and is also used to give a rich brown tint to gravies, is thus prepared:—Loaf sugar is slowly and carefully heated over the fire, until it melts, and assumes a rich brown colour. During this process we must be very careful that the heat is not too great, otherwise the sugar will very quickly take fire. Besides this, if the heat be too great, the caramel acquires a very bitter and disagreeable taste. When the sugar is sufficiently boiled, water must be gradually added until the burnt sugar is dissolved, forming a deep brown liquid. This fluid is then to be strained, while hot, through coarse linen, and carefully preserved.

A Hint on Baking.—A basin of water put into the oven with cakes or pastry will keep them from burning.

Fire-Screens.—The following is an unusual and amusing mode of making a fire-screen. Draw on paper, with Indian ink, a landscape, and paint the foliage with muriate of cobalt; paint such parts as should be blue with acetate of cobalt, and such as should be yellow with muriate of copper, all which will be invisible when dry. By the gentle action of heat, occasioned by putting the screen before the fire, the colours will all fully appear. When removed from the fire, the colours will again disappear, but may be reproduced by the same means, as often as desired.

Buckwheat Cakes.—To a pint of buckwheat flour add a *large heaped-up tea-spoonful* of baking powder, and a small pinch of salt; then mix with water to the consistency of thin batter. Have your frying-pan perfectly clean, and drop in the batter with a table-spoon, using little or no grease. When the cakes form into numerous small holes, they are ready for turning. They should be sent to table *very hot,* and eaten with molasses or golden syrup; some prefer butter. These cakes, with hot fried sausages, form the staple winter breakfast-dish at most American tables.

To preserve Apples in quarters.—The proportions are three pounds of apples to two pounds of pounded loaf sugar. Divide the apples into quarters, removing the skin and core. Put a layer of sugar and fruit alternately, with a quarter of a pound of best white ginger into a wide-mouthed jar. On the following day infuse an ounce of bruised ginger in half a pint of boiling water, cover it close. On the next day put the apples (which have now been two days in the sugar) into a preserving jar with the water strained from the ginger; boil till the apples look clear and the syrup rich. An hour is about the time required. Throw in the peel of a lemon before it has quite ceased boiling. Care must be taken not to break the apples in putting them into the jars for keeping.

Facts worth knowing about Glue.—Glue, if possible, should always be purchased in hot weather, for any glue that is not perfectly hard then, is of inferior quality, and should be rejected, for it does not hold so well, and is liable to become putrid. Neither is the use of it so profitable as the employment of a better kind, as damp glue weighs heavier than dry. The best way to test the quality of glue is to put a piece of it in water for twenty-four hours. In the course of some experiments that were made on the subject, it was found that at the usual temperature of the atmosphere (60° Fahrenheit), the best glue prepared from white bones absorbed twelve times its weight of water, the jelly that was formed being firm and elastic. Glue from dark bones absorbed only nine times its weight of water, and the resulting jelly was not so firm. Ordinary glue that had been prepared from refuse absorbed only five times its weight, and the jelly it formed was so weak that it broke into pieces when touched, while the commonest glue of all only absorbed three and a half times its weight. The best glue makes a very good material for preparing moulds to take the impression of various objects, as, owing to its being so elastic, it may be easily detached from the object when cold. The mould of a coin or medallion may be easily taken by placing the coin in a saucer and pouring over it the liquid glue, taking care that the fluid is nearly cold. When the glue has set and is quite cold, the article may be easily detached from the elastic mould.

Plaster of Paris for Modelling.—When two to four per cent. of finely-pulverised althea root (marshmallow) is mixed with plaster of Paris, it retards the hardening, which begins only after an hour's time. When dry, it may be filed, cut, or turned, and thus becomes of use in making domino-stones, dies, brooches, snuff-boxes, and so on. Eight per cent. retards the hardening for a longer time, but increases the tenacity of the mass. The latter may be rolled out on window glass in thin sheets, which never crack in drying, may be easily detached from the glass, and take on a polish readily by rubbing them. This material, incorporated with paints, and properly kneaded, gives imitations of marbles, can be coloured when dry, and be made waterproof by polishing and varnishing.

CANDLES.—I.

MANUFACTURE, VARIETIES, ETC.

THE invention of the candle may have been taken from a natural product, a plant called "wax-bearing," from its fruit or nuts being covered with a waxy secretion, which may be readily separated and manufactured into candles, whence has arisen its popular name of candleberry myrtle: its wax has long been an article of commerce in the United States. The wax-tree of Japan yields one of the chief articles which that country exports; the candles made with it are coated with bees'-wax. Bornean vegetable tallow, treated with powerful acids, and then distilled, yields an extremely valuable product for the manufacture of candles. Egyptian candlesticks have been discovered, and this fact alone proves that candles were used at a very remote period. Candles were certainly commonly used by the Romans. Roman candles have been found in Shropshire, as, for instance, in the Roman mines on the Shelve Hill. Although candles may have been used for varied purposes in ancient times, yet it is thought that they were not commonly employed for domestic lighting till about the sixteenth century. Candles were, until a comparatively late period, commonly made of tallow, the superior kinds of bleached wax, or the purified head-matter of the spermaceti whale, or of a composition of purified tallow and wax. More recently, the concrete matter from which the more fluid portion of the oil of cocoa-nuts has been separated by pressure, has been used for making candles; and next, from palm oil has been obtained by a chemical process, stearine. Petroleum, a natural product, from Burmah, has also yielded another candle-making substance, and lastly, paraffine.

It is not our intention to describe these several processes, but to point out a few of the results for the information of housekeepers, as regards economy of cost and light. So long ago as 1829, the following receipt for the improved preparation of candles was given in *Brewster's Journal*:—"Steep the cotton wick in lime-water in which is dissolved a considerable quantity of nitre. By this means is obtained a purer flame; a superior light and a more perfect combustion is insured; snuffing is rendered nearly as superfluous as in wax candles; and the candles thus treated do not run: the wicks should be thoroughly dry before the tallow is put to them."

There are two ways of making candles. *Dipped Candles* are made as follows:—Wicks made of spun cotton are selected according to the intended diameter of the candle, cut into the requisite length by a machine, and are then placed at regular intervals on the rod ready to receive their external coating of tallow, previously melted and strained in a trough, into which the wicks are dipped, then allowed to drain over the trough, and the rods are placed on a rack from which the candles hang freely, and are thus allowed to harden. The same process is repeated, according to the required weight of the candles. Meanwhile, the tallow in the trough is supplied and kept in a proper state of fluidity by the external application of a brazier, or bath of hot water.

Mould Candles are made in pewter moulds. From ten to sixteen are placed in a wooden frame so that their larger ends terminate in a kind of trough; the wicks are inserted and kept firmly in their proper places in the centre of each cylinder by strong wires. Melted tallow, of the finest quality, is poured into the troughs, and thus the moulds are filled, and when the tallow has completely cooled, the wires by which the wicks are fixed are withdrawn, the superfluous tallow is removed from the trough, and the candles are drawn out of the moulds

Wax Candles are made by a different process: the wicks being cut and twisted, a set of them is suspended over a basin of melted wax, which is taken up by a large ladle and poured from time to time on the tops of the wicks, and the melted wax, running downwards, adheres to and cover the wicks. This is repeated until sufficient wax has been gathered on each. After the candles are sufficiently cooled, they are rolled upon a smooth table in order to give them a perfectly cylindrical form, and are then polished. By careful experiments, it has been proved that the flame of a tallow candle is far more brilliant than that of wax lights.

The principal improvement in candle-making consists in employing palm oil, margaric acid, and stearic acid, or stearine. The palm oil is melted in an iron pan, and then cooled gradually, by which it is separated into a liquid *oleine* or oil, and two solids, *stearine* or *margarine*. The oil being expelled by pressure, the solid fats are melted and mixed with quicklime, and the mixture is afterwards brought to a granulated state by the action of cold water. Muriate of lime and sulphuric acid are then employed to separate the quicklime from the solid fats, and the latter, after being washed, cooled, and crystallised, are pressed, whereby the stearine is separated from the margarine. The two are separately bleached, and the stearine goes through further refining processes, until it assumes the form of a pure and solid kind of palm-wax, or hardened tallow, fit to make into candles in the usual way. The margarine or margaric acid, obtained in this way, is mixed with common tallow to make another sort of candles. The circumstance of palm oil being in a solid state in our climate, coupled with the above mode of separating it into three different substances, oleine, stearine, and margarine, have led to many variations in the mode of making candles by the mixture of one or more of these component elements with tallow or some kind of animal fat.

Vegetable tallow from Borneo, and nutmeg butter, when acted on by powerful acids and distilled, produce valuable materials for the manufacture of candles. The tallow or butter is then distilled by highly-heated steam, and the distilled products are received in a condenser, to be used alone or mixed with other materials for making candles and night-lights of the better class; or, without distillation, the materials may be used in making candles and night-lights of inferior descriptions.

Mineral Candles are made from a semi-fluid naphtha drawn up from wells in the neighbourhood of the river Irrawaddy, in the Burmese empire. This substance is partly volatile, and is imported in closed metallic tanks. The crude naphtha is distilled with steam in three operations. These liquids are all colourless, and do not solidify at any temperature, however low. They are useful for many purposes. All are solvents of caoutchouc; some are anæsthetics, and others, called *Sherwoodoles*, readily remove oily stains from silk, without impairing even delicate colours. Others are used as lamp fuel; they burn with a brilliant white flame, and as they cannot be ignited without a wick, even when heated to the temperature of boiling water, they are safe for domestic use. After the distillation just described, there is a residue, which, being fined and purified, yields *Belmontine*, from which are manufactured candles possessing great illuminating power. It is stated that a Belmontine candle, weighing one-eighth of a pound, will give as much light as a candle weighing one-sixth of a pound of spermaceti or stearic acid.

Palmer's candles differ in many points from those in common use. The wick is in two halves, twisting spirally round each other; each half is bound round in a tolerably compact form, and the spiral being untwisted by the gradual burning of the candle, causes the tops of the two wicks to spread out beyond the flame. The carbon, or charred portion of the wick, is then carried off or consumed, and the candle needs no snuffing. The lamps or candlesticks used for burning Palmer's candles, and which

are indeed fitted for most kinds of candles, have a conical cap to keep the candle within the tube, and a spiral spring in the lower part of the tube to press the candle upwards as it burns. These candlesticks, and the candles belonging to them, maintain the light always at an equal height, and dispense with the aid of the snuffers. Some kin.. of shade or glass is necessary.

Candle-lamps, or tallow-lamps, are contrivances for burning solid tallow or fat instead of oil, but without having the tallow formed into a candle. The tallow or fat is placed in a receptacle having hot water or hot metal beneath it, so as to keep it in a melted state, fitted to be used in the same manner as oil. In another contrivance, where either lard or tallow is employed, there is a piece of metal, which descends from the flame into the vessel containing the lard, and this metal, being heated by the flame, keeps the lard in a melted state. An ingenious mode consists in having an air tube within the wick to carry up air to the flame, and two projections from this tube at the top into the flame itself, so that the metal of which the tube is made, becoming heated at the upper end, speedily communicates heat to the contents of the lamp below.

PRESERVATION OF EGGS.

NO item of food is perhaps more invaluable in domestic economy than the egg. There are several methods of preserving eggs—some for longer times, and some for shorter. When it is required to preserve them only for shorter times—say several months—it is inexpedient, as well as undesirable, to adopt those processes calculated to preserve them for longer times—say a year or more. It must be borne in mind, that in all processes of preserving eggs, it is essential that the eggs should be new-laid when submitted to the process.

Modes of Preservation for Longer Times.—1. Take a box, barrel, or pan, and cover the bottom with a layer of pounded salt, about half an inch deep; lay upon it a layer of eggs as close together as possible without touching each other; throw in pounded salt so as to fill up all the interstices between the eggs, and just to cover them; lay in a second layer of eggs as before, and repeat the process until the box is full. Let the layer of eggs at the top of the box be covered an inch deep in the salt, and let the salt be pressed down as firmly as consistent with not breaking the eggs. Cover the box tightly with a close lid or double sacking, and keep it in a dry, cool place. Eggs are sometimes placed in a net, a sieve, or a cullender, and immersed for an instant in a cauldron of boiling water immediately before packing them away. 2. Take a bushel of quicklime, three pounds of salt, and half a pound of cream of tartar; place them in a barrel or pan, and mix them, with water, to the consistence of thick cream, just thin enough for the eggs to float in. Place as many eggs as can be contained in this liquid, and cover over with a sack or old blanket. In this way eggs may be kept for a year or two. 3. Place eggs in a tub or barrel, and fill in the tub with a thick batter of lime, made by mixing quicklime with water. Let all the eggs be fully covered, and the vessel full to the top. Cover over with a blanket or sack, and keep in a cool place. The eggs may, *at pleasure*, be immersed for an instant in boiling water, as in the former processes.

Modes of Preservation for Shorter Times.—1. Place the eggs in a strong string or worsted net, and suspend the net from the ceiling; constantly—say daily—hang up the net of eggs by a different mesh, in order that all the eggs may be turned and exposed on all sides to the action of the air. By this process, eggs may be preserved for a limited period, and the yolks prevented from sticking to the shells. The period they will keep under this process may be increased by their being preliminarily immersed in boiling water for a period from the space of an instant to two minutes. 2. Rub the eggs, while new-laid, with fresh butter, lard, or gum-water, any of which serve as a preservative, by means of excluding the air from the pores of the shell; place the eggs in a net or basket, and keep turned twice a week. Eggs should always be kept in a dry place, but cool, as in the damp they generally become musty. 3. Parboil the eggs—that is, plunge them in boiling water for a minute, or at most two—and store them by in a net or basket, being careful to keep them turned as in the former processes. After being parboiled, they may be rubbed over, while hot, with lard or fresh butter, which will greatly extend the period for which they will keep.

HOUSEHOLD LAW.—XV.

RATES AND TAXES (*continued from p. 85*).

IN continuation of our last paper we give a list of the assessed taxes as fixed by recent legislation:—

	£	s.	d.
Armorial Bearings.—If painted, marked, or affixed on or to any carriage	2	2	0
Otherwise used	1	1	0
Carriages.—For every carriage with four or more wheels, weighing 4 cwt. or upwards	2	2	0
For every carriage with less than four wheels; or having four or more wheels, but weighing less than 4 cwt.	0	15	0

[*Exemptions.*—Waggons, vans, carts, &c., used for purposes of trade or husbandry only (though used for conveying owner and family to place of Divine worship on Sunday), with Christian and surname and place of abode of owner painted legibly thereon.]

	£	s.	d.
Dogs.—On every dog an excise duty of per ann.	0	5	0
Game Duty.—On a gamekeeper acting under a deputation duly registered with Clerk of the Peace—			
If assessed as a servant to his employer	2	0	0
If not so assessed	3	0	0
On every other person using dog, gun, net, or engine for the taking or killing of game:			
If certificate be taken out after 5th April and before 1st November—			
To expire on 5th April following	3	0	0
To expire on 31st October in same year	2	0	0
If certificate be taken out on or after 1st of November—			
To expire on 5th April following	2	0	0

In case of any person omitting to take out the proper certificate, the surveyor of taxes will bring him into charge, and the assessment must be double in every case.

	£	s.	d.
License to deal in game	2	0	0

The penalty for selling game (not being duly licensed) is £5, and this penalty is also incurred by the buyer of game from an unlicensed person.

	£	s.	d.
House Duty.—On each inhabited dwelling-house of the annual value of £20 or upwards, occupied as a farm-house by a tenant or farm-servant, as a public-house, shop, or warehouse, or in which articles are exposed for sale, a duty of 6d. per pound; all others	0	0	9

[*Exemption.*—Any tenement or part of a tenement occupied for purposes of trade only, or as warehouse, shop, or counting-house, although a servant or other person may dwell therein for protection thereof.]

	£	s.	d.
Male Servants.—For every male servant	0	15	0

THE HOUSE.—X.

WATER SUPPLY (*continued from Vol. II., p. 261*).

NATURE has wisely ordered that water shall possess the power not only to hold various salts and compound substances in solution, but that it shall be the medium for the transmission of gases from the deep and secret recesses of the earth to its surface, and that it shall also aid in resolving substances, mineral, animal, and vegetable, into their ultimate elements. Therefore it is that water may be regarded in the light of a purveyor and store-bearer to the plant world. The admirably constructed and beautifully formed vegetable tube we call a *wheat-straw*, and the giant member of the grass family familiarly known as a bamboo cane, each has on its surface a smooth and polished coating of almost chemically pure flint or silica, which the tiny fibres and open-mouthed rootlets of the plant have, aided by water, conveyed through the tube-system of the stalk to the marvellous chemical laboratory at work in the organisms of plants—which, by its admirable but occult operations, forms the healing balm and nutritive food yielded by some members of the vegetable world, and the deadly poisons to be obtained from others. It is both curious and noteworthy that, although vegetable growths of various kinds may be associated in a very limited space, fed by the same soil and refreshed by the same water supply, each will continue to furnish its own special active principle. It is on account of the great readiness with which water takes up and bears with it an almost endless number of impurities, that it forms a suitable element for the support of countless millions of animated creatures of greater or less magnitude. Some of these water-dwellers live on the almost microscopic particles of decomposing animal or vegetable tissues, which either float through the fluid, or remain as a sediment in the vessel or cavity in which it may rest. Others are predatory in their habits, and live by destroying and devouring their lesser and more pacific associates, to be themselves in turn devoured by more powerful creatures. Stagnant water usually teems with minute life, and it is most fortunate that such is the case, as purification, to some extent, is brought about by every living, moving thing which dwells in water. Plants, too, lend their aid in the work of purification by eagerly drinking in noxious elements and returning them in an entirely new and changed condition of arrangement.

We have explained in former articles the manner in which water is usually stored up for use, and the sources from which man usually obtains it. Water—no matter how obtained—is, from the very instant of its birth or formation, striving to unite itself with new bodies and enter into fresh combinations. Therefore it is that we are obliged to have recourse to various expedients for the purpose of either compelling it to remain uncombined, or forcibly breaking up such objectionable associations as it may have entered into. Some of these are chemical, and others mechanical, requiring entirely different modes of treatment. To make ourselves thoroughly understood by the reader, we will suppose that we take three cups partly filled with pure water; we place some fine clean sand in one, a little common salt in the other, and stir up a portion of a rotten egg in the third. A little investigation will show us that the water in our cup No. 1 will rapidly become clear; that the sand will, by its own gravity and quality of insolubility, fall to the bottom. Ordinary straining or filtration is therefore all that is needed to separate the water and unchanged sand from each other. On examining cup No. 2 we shall find the water apparently unchanged and the vessel free from sediment; let us taste the water, and we find that it has acquired a saline flavour. Salt is soluble, and the water has seized on it, and converted it into a solution which no system of either straining or filtering will alter. Drive the water off in the state of steam by the aid of the still or retort, and the union will be at once destroyed by the crystalline salt being left in the bottom of the vessel and the pure water deposited in the receiver. Our makeshift tea-kettle still—before described—depends for its efficiency on this principle. An examination of our third cup will reveal to us the fact that the water contained in it has not only become turbid, but that it has acquired a most insufferably disagreeable odour, and, in fact, that it has become charged with foul gases, given off from the putrid animal substance which was placed in it. If we strain the fluid, we merely remove some of the more solid substances, but the impure smell still remains. Distillation helps us but little, as the gas mounts and enters the receiver as freely as the water vapour. We therefore place a thick layer or deposit of broken charcoal in a deep, narrow vessel, and cause our contaminated fluid to slowly percolate through it, and we shall find that the antiseptic power of carbon has freed the water from its bad companions and fitted it for man's use. On the principles on which our three cups were experimented with, must we work in the construction of appliances for freeing impure water from its various contaminations.

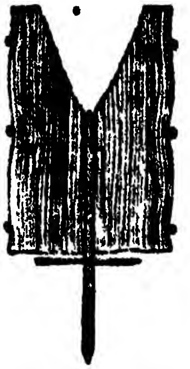


Fig. 1.

Fig. 2.

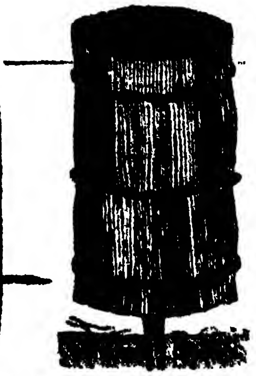


Fig. 3.

Fig. 4.

Fig. 5.

Filters of various forms of construction are usually made use of in settled and civilised countries for the purpose of rendering the water required for drinking and cooking purposes pure; but there is, perhaps, no subject on which more erroneous opinions are entertained than on that of the purifying powers of the filter. Scientifically constructed, it possesses the power of removing mechanical impurities and taint from the admixture of foul gases—but saline and mineral solutions retain their characteristic properties and deleterious effects, notwith-

standing that they may have been subjected to the action of the most perfect form of filter ever devised; and it is most remarkable that quantities of mineral, so minute as to render detection difficult, even by the most skilfully conducted chemical analysis, will not unfrequently produce the most destructive effects on the constitution of the person who habitually imbibes water so charged. There are also gases which cause the bright clear water to become covered with tiny, dancing, bursting bubbles which are too apt to carry disease, if not death, with them. The contents of these vesicles are the binary compounds of hydrogen, sulphur, and phosphorus, so often met with in the leaky, badly-constructed wells of the crowded streets and courts of large towns and cities. And here we wish to earnestly impress on all those who may own household property in thickly-populated neighbourhoods to most carefully examine into the condition of wells or reservoirs from which the water supply is drawn, lest death-dealing disease may be called into full activity by the agency of that which should be the great preserver of health. In the rural districts it too often happens that the water intended for drinking or cooking purposes is allowed to run in open unprotected channels for very considerable distances through fields and pasture-lands, before it reaches the dwellings of the consumers; such exposure not only causes serious loss by earth and plant absorption, and the attacks of thirsty cattle, but the acquirement of an almost endless train of contaminations and impurities, living and dead, animal, vegetable, and mineral. Earthenware pipes or bored-out tree-trunks placed end to end, or planks nailed into square tube-form, should always be made use of to guard water which has to flow through meadows or open grounds; and particular care should be taken that the source or head of the supply is well protected against the inflow of foul and turbid rain-water from the surfaces surrounding it.

The methods by which water is freed from impurities and fitted for the use of civilised man will vary with the nature of the contamination to be removed. Fine, heavy, sandy particles which impart a cloudy appearance to water when first dipped or drawn, rapidly settle to the bottom of the water vessel, and remain there so long as they are undisturbed. Sometimes a small quantity of argillaceous matter prevents a complete and perfect clearing of the cloud to take place. Curiously enough, a piece of common alum, the size of a large filbert, thrown into a pail filled with water clouded as we have described, will cause a rapid clearing away of all particles of suspension.

Water may also be freed from a number of foreign substances in the following makeshift manner. In the hollow or pool made for the reception of the supply, form a small indentation or bay in such a manner that it may make a sort of notch in the bank. Procure a large bundle (say a yard in diameter, and four feet six inches long) of reed—either wheaten or marsh reeds will do; bind the whole very firmly together with twisted willows, or twig bands; cut both ends of the cylinder thus formed perfectly even; then with a sharp knife proceed to hollow out a deep cavity in the upper end of your reed bundle, until it presents the appearance of a deep conical basin, as shown at Fig. 1 on the previous page; then place your prepared bundle, cup end upwards, in the hollow of your bay, and see that it fits the cavity prepared for its reception. Cut a straight thin pole of a length proportioned to the depth of water. Bore a hole through it large enough to contain a long, stout, wooden peg, in the manner shown at Fig. 2. Drive your pole firmly into the bottom of the pond or reservoir, and impale your reed bundle on it as shown at Fig. 3. In a short time the water will be found to have percolated through the mass of reeds into the water basin, out of which it can be easily dipped for use.

Reeds or grass stems may be converted into a very useful form of rough-and-ready filter in the following manner:—Gather a bundle of grass or reeds as large as your thigh, and tie it with several bands into a tapering or conical form, as shown at Fig. 4. Hang up your cone, point downwards, and pour your foul water gently on its broad end; as it runs out at the bottom it will be rendered comparatively clear. Straining through a blanket filtering-bag stretched on a hoop may, at times, be had recourse to, in the absence of other means of filtration.

So far, the kinds of filters which we have described are only calculated for removing mechanical impurities—gaseous contaminations or taints of any description are best removed by the action of charcoal in some form. A very valuable form of makeshift barrel-filter will be found described and figured at pages 36 and 37, vol. ii.; that is, however, mainly calculated for use in open, shallow wells or pools.

A very convenient form of household makeshift filter can be made as follows:—Obtain a very large-sized flower-pot, of common red ware; procure also a number of pieces of broken flower-pots; break these into fragments just too large to pass through the drainage hole in the bottom of the pot. Over these place a closely-deposited layer of either animal or vegetable charcoal; press this well down with a wooden rammer; over this lay a three-inch layer of cleanly-washed sand; above this another layer of rammed charcoal, and over all a layer of tolerably coarse but well-washed flint gravel. These layers should about half fill the pot. Place a stout wire round its top under the rim, and to this three suspension wires, as shown at Fig. 5. The upper part of the suspended pot may then be filled with the water to be treated, and as it filters it will fall into a vessel placed for its reception, which should be just wide enough at its orifice for the tapering bottom of the upper pot to enter. A hole may be drilled through this receiver for the admission of a common wooden spiggot and tap, and a wooden cover should be fitted to the upper pot. Any stonemason can drill the hole. A filter thus made costs a mere trifle, and will last for years. Water suspected of containing insects, or their larvæ, should be boiled before use. Boiling also tends to render to some extent the injurious qualities of partially-decayed vegetable matter less to be dreaded, but it is only in cases of absolute necessity that water so charged should be used for either drinking or cooking purposes. Distillation is the process by which saline or mineral impurities can be removed from water intended for use. Sea-water is rendered approximately pure by the use of the still, which will be found figured and described at page 36, vol. ii. There are a great number of modifications of the still, the principle of which is so simple that any person possessed of even a moderate share of ingenuity can construct one. Distilled water should always be used for mixing with medicines, or making solutions of chemicals.

HOUSEHOLD LAW.—XVI.

RATES AND TAXES (*continued from p. 144*).

IN continuation of our previous papers on this subject, and before proceeding to give an account of the compound householder, it may be as well to mention one or two points omitted from the last paper.

Unions.—For the purpose of the relief of the poor, as well as of concentration of general parochial machinery, it has been deemed advisable by the Legislature to authorise the Poor Law Commissioners to compel parishes to combine, and to exercise collectively the functions imposed upon them by Acts of Parliament. Parishes are thus formed into unions, under the government of a single

board of guardians of the poor, to be elected by the ratepayers of the component parishes. The guardians are chosen by the individual parishes, in number according to the comparative importance of the parish with the other parishes composing the union; the united parishes have a common workhouse, provided and maintained at the common expense; but each parish remains (unless expressly provided against) separately chargeable with the expense of its own poor, whether relieved in or out of the common workhouse. Where such an arrangement exists, the union board have to determine what funds are necessary for the support of the poor of the union district, and to assign to individual parishes their relative quota of contribution. The quota being assigned, it is for the parish concerned to say by what rate or other means the amount shall be raised. It is even competent to such parish to protest against the amount laid upon it, and to appeal from the decision of the board to that of the justices, or the Commissioners of the Poor Law Board. The amount of contribution being ascertained by consent, or some competent authority, it is for the parish in vestry assembled, to say how it shall be defrayed. But powers are given by Act of Parliament to unions to go farther than this towards consolidation of machinery for relief of the poor, and the component parishes of a union may, under sanction of the Poor Law Commissioners, by their own act, be united for the purposes of settlement and of rating, as well as that of relief and management, so as to include the united parishes in one local government. It does not follow, however, that because parishes are united for poor relief purposes, they are therefore united for other purposes as well. The taxes necessary for local management, and the administration of those taxes, may still be in the hands of representatives from the individual parishes; but, at the same time, it is competent to the members of a union to combine for these objects also.

Persons chargeable to Parishes.—It is not possible in the limits permissible to an article of this kind to enter upon a description of the complicated law of settlement—that is, to state the circumstances under which the original right to be relieved by the parish in which one was born, or apprenticed, or to which one has paid taxes, may be modified or lost. It may be as well to state, however, that the parish is not bound to relieve any who have certain relations competent, or by law compellable, to maintain them. The relations so compellable are—father and grandfather, mother and grandmother, and children of the pauper. These are liable to maintain him at such rate as may be assessed by the justices at general, quarter, or petty sessions; and sums so assessed are recoverable in summary process before two justices of the peace, and may be levied by distress and sale of the goods and chattels of the offenders. Persons able to work and refusing to do so, so that they and theirs become chargeable to a parish, may be punished as idle and disorderly persons, by imprisonment for a month with hard labour in a house of correction. Paupers set to work and refusing to do it, are punishable by committal to gaol with hard labour.

HOUSEHOLD DECORATIVE ART.—XXXV.

IMITATION OF JAPAN DECORATION.

FOR this interesting work yellow withered leaves are indispensable. Gather perfect withered leaves that have turned yellow, the size being regulated according to the article that is to be ornamented. For tea-caddies, flower-pots, hand-screens, &c., the leaves should be small, but chosen of various sizes; for fire-screens and other articles they should be larger. Having gathered the leaves, and with a soft brush gently and carefully removed any particles of dust that may adhere to them, the leaves are to be pressed between sheets of smooth white paper. This may be done by placing the paper on a smooth hard surface, and, when each sheet is filled with the leaves, laying a heavy book—a bound music-book, for example—on the top, or a flat piece of board, and on that a weight, and if a heavy one is not at hand, two or three laundry irons will serve the purpose; and it will be well to change the paper every day, until the leaves are perfectly dry. Smooth, white, glazed paper preserves the colour better than newspaper or blotting-paper.

While the leaves are drying, the article to be ornamented can be prepared in the following manner:—With fine emery-paper, or sand-paper, if the former is not found sufficiently rough for the purpose, rub the surface of the caddy, workbox, &c., to free it from roughness of any kind; then thoroughly paint it all over with fine black paint. When the paint is quite dry, rub the surface smooth with fine pumice-stone, and paint twice more. Let these coats of paint dry, and meanwhile arrange the leaves and prepare them for the work, selecting the most perfect in shade and form. When the last coat of paint is dry, gum each leaf with strong thick gum at the back, and with a soft handkerchief press them on the article in the design that has been previously marked out. In making the design or pattern for the leaves, care must be taken to keep the lines made within the pattern for the leaves; a simple line for the centre of the leaf will be sufficient. This is obviously to avoid injury to the black surface left between the leaves. When the box, &c., is thus ornamented with the leaves, it must be washed over with isinglass dissolved in hot water, suffered to get cold. When perfectly dry, over the isinglass give a coat of copal varnish; when dry, a second; and when that is dry, a third.

The effect may be varied by introducing among the leaves Chinese patterns of flowers, &c., that may be purchased at artists' colour and drawing shops, printed in gold. These must be very carefully cut out with very fine sharply-pointed scissors, and the scissors must be allowed to go within the drawing, so that not a particle of the white paper be left round the edge; and coloured Japanese, Indian, French, or English designs may be introduced among the leaves with a very good effect. Any coloured or gold engraving that may be chosen according to taste must be fixed precisely according to the directions given for the leaves. The stalks of the sprays and leaves and other fine lines are made with opaque white or yellow water-colour, and drawn with a fine camel-hair pencil, a pattern having been previously sketched. When the stems, &c., thus painted are dry, they must be covered with gold from a shell or saucer with a fine camel-hair pencil. By mixing the white paint with gum, and drawing over the lines several times as they get dry, they will become thick and raised above the surface, in imitation of some Japanese ornamental work. The leaves will be flat, as they will not bear raising in the centre, in consequence of becoming brittle in drying, but the gilt paper patterns may be made to look thick and raised in some parts by gumming paper beneath them two or three times in thickness in graduated sizes; but the thickening must not be made close to the edge of the pattern—merely a raised appearance being required in some parts of the design; which may be produced with very good effect by layers of thick gum one over the other as they dry; and on that the design may be laid. Whether the design be raised or flat, the mode of procedure is exactly the same.

THE HOUSEHOLD MECHANIC.—XL.

FERN CASES AND WINDOW GARDENS.

(*Continued from p. 71.*)

HAVING described in a previous paper the more simple and easily-constructed fern cases, we now proceed to

explain those which are more elaborate. Before attempting to construct these, however, we would advise that the tyro should make one or two of the simpler ones in order to render himself quite familiar with the work. Time so occupied will be saved in the long run; as, after two or three pieces of work have been executed, such facility of execution will have been acquired that the more difficult operations will become comparatively easy.

We now propose to show how fern cases of a rustic pattern, such as those shown in Figs. 1 and 2, may be made. In these figures the intention is to provide in the fern cases a kind of rustic frame through which the beautiful forms of the plants may be observed, in lieu of the ordinary square and inelegant lines in which they are usually enclosed. Of course these designs are merely offered as suggestions; and it will be better for the constructor to decorate according to his own taste than to work to any given pattern.

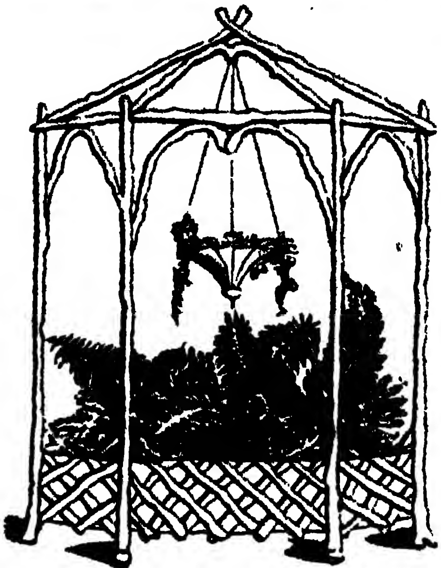


Fig. 1.

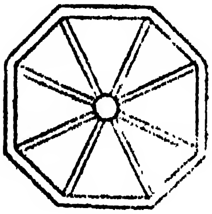


Fig. 3.


Fig. 4.

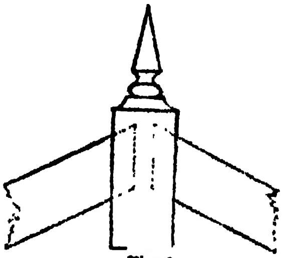


Fig. 6.

Fig. 1 represents an octagonal case in which four of the sides are large and four small, as shown in the plan at Fig. 3. The details of construction for this case, as far as the top rail upon which the roof rests, are precisely similar to those described in our last paper, except that the upright bars, instead of being square, must be bevelled as shown in Fig. 4, of course to the angle required. If the case is to be decorated with rustic work, the glass should be kept as near the front edge as the frame will allow, as shown in the figure; as, if a broad space be left, it will look awkward when the work is completed. The body of the case having been completed, the roof may be proceeded with, and this will somewhat differ in detail from those already described. The lower frame of this must be made to fit on to the top rail as in the square case, but the bars will require fitting into the centre block as shown in Fig. 5. The way in which this is to be done will be easily understood from the diagram. A A is a central block of wood which should be large enough to receive mortices, in which the ends of the bars, B B, may be inserted. These bars will of course be in pairs, and must be cut away, as shown in the figure, so as to bring the edges together just outside the block. This block must have as many sides as the case, and, if preferred, it may be left long enough to allow of a turreted ornament upon the top end, which may form a finial to the top of the case, as shown in Fig. 6; while upon the lower end a small hoop may be placed, which will serve to support a basket. The roof must be constructed with rabbeted bars, and not grooved as in the lower part of the case. A fern case of this shape is suitable for a stand or table, but for a window the form shown in Fig. 2 is to be preferred. The same details of construction are applicable to this form, with the exception of the roof, the plan of which is given in Fig. 7, in which A A represents the frame fitting on the top of the case; B B, the bars; and C, the ridge piece. The ends of this ridge piece should be tenoned as shown in detail at Fig. 8, in which A represents the ridge, B, the blocks into which it is tenoned, and C, the bars which are fitted as before described. The whole of these parts require careful fitting together, and will occupy some little time. When all the parts are ready, the work may be put together; carefully gluing every joint, and leaving the whole undisturbed until the glue is perfectly hard, which will be in about twelve hours, if the place wherein the work is executed be dry and warm.

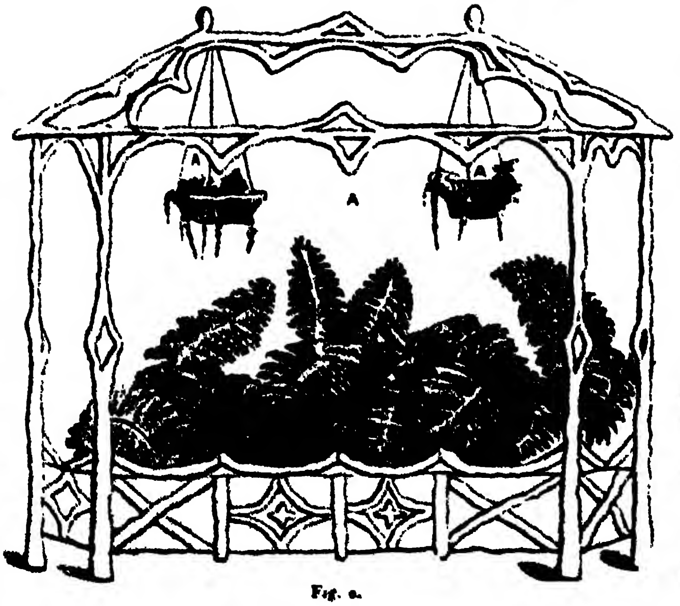


Fig. 2.

If the case is to be finished square, and not decorated, the ordinary form of sash bar will answer perfectly for the roof; but if the design which we have indicated at Figs. 1 and 2 is to be carried out, the bars should be somewhat modified in order to afford better and more secure fixing for the branches employed. In this case

the bar should be somewhat flattened, as shown in Fig. 9, and the rabbets made rather more shallow than usual. It will also be better if slips of wood, secured to the bars by means of needle points, be substituted for the ordinary putty to fix the glass in its place. Before proceeding to decorate the case, the whole of the work should be thoroughly painted. This is important, as if it be not properly attended to, the damp, which is sure to rise in the interior of the case, will speedily destroy the glue, and eventually affect the woodwork itself.

In the designs given, it is intended to decorate the framework with branches of trees somewhat in the same manner as we have before recommended in previous articles on Garden Furniture. In this case, however, the work will require much more care and delicacy of treatment, as it will not only be in the house, but will be so placed that any defect of workmanship will be conspicuous, and easily detected. The branches should be very carefully selected, and, as a general rule, those with a close-grained, smooth exterior bark will be most suitable. In case these cannot be procured, it will be advisable to remove the bark altogether, and when the work is completed, to varnish the whole with good oak varnish. A large stock of branches should be provided in the first instance, and a careful selection made of those which are most likely to be available for the work. A rough sketch of each side of the case of the full size should be made upon a board, if possible; this will enable the workman to fit the parts together upon a flat surface, and will be found to be very convenient, and will effect a great saving of time and labour. Instead of splitting the branches, as was recommended for the rougher kinds of work, in this case they should be sawn down longitudinally, not following the smaller irregularities, but only the larger curves of the wood. This will be most easily effected if the branch be secured at one end in the bench-screw. A saw about an inch in width, and not too thick, should be used. It will be well to select the wood required for one opening at a time, and to finish this part before commencing another. It will, at first sight, doubtless appear to be a difficult matter to work out anything like a symmetrical design

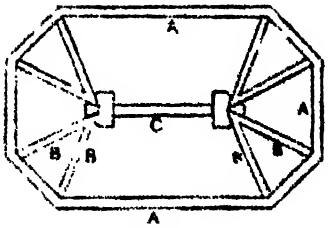


Fig. 7.

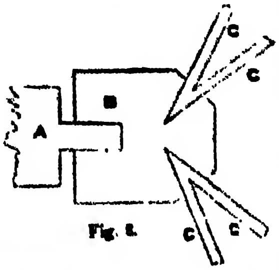


Fig. 8.

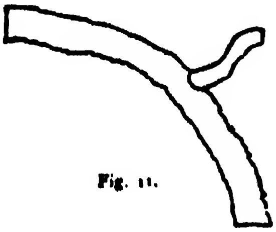


Fig. 11.


Fig. 14.

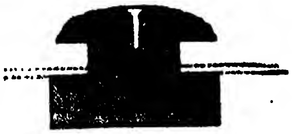


Fig. 9.

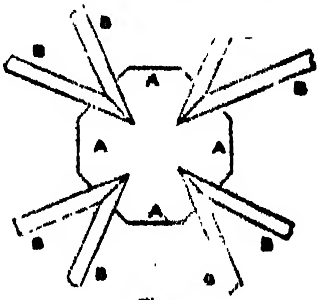


Fig. 5.

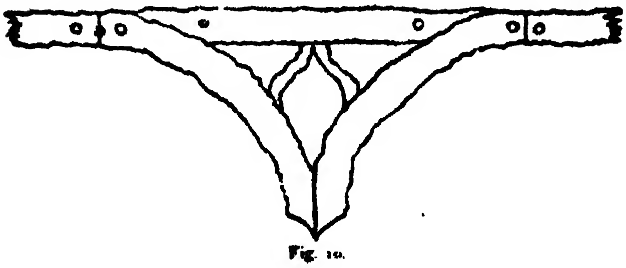


Fig. 10.

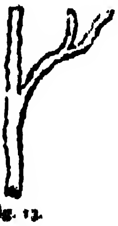


Fig. 13.

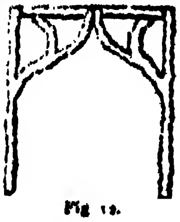


Fig. 12.

with such irregular material. This, however, will not be found so in practice if the method we advise be adopted. We will give two illustrations of this. Fig. 10 represents one of the projecting portions marked A in Fig. 2. In order to construct one of these, select a branch similar in form to that shown in Fig. 11. It will at once be observed that if this be sawn down its entire length, and the two portions placed with their flat surfaces inwards, next to the frame, the outline produced will be that shown at Fig. 10. The second example is that of the complete arch required both in Figs. 1 and 2. In this case an outline something like that shown in Fig. 12 will be needed. The branch, Fig. 13, cut down and placed as before directed, will at once furnish the outline required; and, when once the workman has succeeded in arranging one or two figures, he will be surprised to find how very readily these irregularly-shaped branches may be wrought into symmetrical designs.

The decoration of the lower frame or box may be arranged according to the taste of the workman. If the branches are to be crossed, as shown in Fig. 1, those placed in one direction should be secured first, and the intervening spaces may then be filled in with short pieces cut at the ends, so as to fit over the branches first secured, as shown above in Fig. 14.

If a quantity of thin bark can be procured and firmly fixed under the branches so as to entirely cover the ground of the work, it will be very effective, and greatly add to the finish of the case. Should a pattern such as that upon the lower portion of Fig. 2, be preferred, the material must be selected precisely as we have advised for the other parts of the work.

The ingenious workman will readily find out for himself various methods of applying natural products, such as fir-cones, and grotesquely-shaped knots and branches, to the decoration of such work as this: and it will be far better, as a rule, for him to exercise his ingenuity and make designs for himself, than to follow too closely those of others.

In the fixing of the branches or other decorations to the framework of the case, care must be taken

to avoid splitting any part of the wood. The finest brass screws will be most suitable for screwing the branches on, and the holes required must be gently bored with a very sharp and fine bradawl.

In decorating the angle bars, the branches may either be selected to cover the one side only, as shown at A, Fig. 4, or wider pieces may be used and cut to join in the centre as indicated at B.

The foregoing remarks and instructions are of course intended simply to explain the construction of movable cases. But there are others (without a description of which these papers would be incomplete) which are intended to be permanently fixed, and which from their large size and position may be termed window gardens.

These cases may be, in fact, considered as small conservatories, and although ferns may be growing therein, unless too much exposed to the direct rays of the sun, they are not strictly speaking fern cases, as in them many other plants of a different nature may be cultivated with success.

Some further account of these small window conservatories will therefore be given in our next paper upon this subject.

PIGEONS.—II.

DOVE-COTS (continued from p. 42)—GENERAL MANAGEMENT, ETC.

STANDARD pigeon-boxes are open to the objection of being cold and comfortless. They are as much exposed to summer heat as those on walls, and are not, like them, sheltered from cold winds. The chief recommendations of standard boxes are that they can be made ornamental objects for the lawn or courtyard; that they may be placed in front of your windows so that you may constantly have the pleasure of watching your birds; and that they are safe from rats and similar vermin. An old barrel raised on a pole, covered with a sloping roof divided into cells, and furnished with proper doorways and ledges makes a good standard. To its fitting up, most of the remarks made with regard to the wall-boxes will apply.

All kinds of wooden cots and boxes are objectionable, as exposing their inmates to the vicissitudes of heat and cold. It has been suggested that this might be remedied by making them of a double thickness of board, two inches apart, the air between serving as a non-conductor; but it is our opinion a better plan to place roofing-felt between the two layers of wood.

Stocking the Dove-cot.—For this purpose it is never advisable to purchase old birds; it is only in rare cases that they can be induced to remain. The sole method of keeping them is by clipping their wings; but even then it is quite possible that they will be lost when new feathers have grown, and sometimes at moulting season the stumps of clipped feathers do not leave freely, and occasion inflammation. It is, therefore, better to begin with young birds—squeakers of from a month to six weeks old. They will at first require feeding three times a day with soaked peas or tares, but in a few days will peck for themselves. It will be well to keep them shut in till they are mated and have laid their first eggs, when they may be allowed full liberty; the danger of losing them will then be reduced to the minimum.

The sorts of pigeons to be selected must depend entirely on circumstances and the taste of the keeper. For a large dove-cot in the country, the common blue dove-house pigeon has its advantages; it is less prolific and smaller than the tamer varieties, but it is hardy, subject to few diseases, and can almost provide for itself. Its wild nature, however, unfits it for a pet, and it is deficient in beauty. Runts are extremely prolific, and good birds for the table, but bad sitters and nurses. For those who delight in good and amusing fliers, no birds are better than Tumblers. Archangels, Nuns, or Owls will suit those who love to see graceful and handsome birds. For some, Carriers will have especial charms. As a rule, however, it will be well for the beginner first to stock his cot with cheap and common birds; if afterwards he prefers to keep the more costly fancy pigeons, he will then be less liable to lose them, and the first occupants will be useful to hatch the eggs and rear the young of those kinds which are too dignified to perform those common offices for themselves. August squeakers are considered best for stock purposes.

How to Distinguish Sex and Age.—In adult birds the cock has generally larger size and finer plumage, a longer breastbone, a thicker neck, a stouter bill, and fuller cheeks than the hen; the coo is louder and deeper than hers, and he gives utterance to it more frequently. The coo of the hen is shorter and less deliberate, her vent-bones are set wider apart, and her general demeanour and expression are milder than those of the cock. A little experience with the commoner kinds of birds will enable the keeper to distinguish sex without difficulty; with fancy pigeons it is less easy, and we give the advice of a well-known and successful breeder in the best method of determining a doubtful bird.

"Place it in the matching pen away from all others, for a few days, till it gets tolerably used to its new abode, which will depend much on the bird being wild or tame. Secrete yourself where you may not be noticed, if the bird is wild, but where you can see its movements. Then introduce a merry cock, who will at once play up to the stranger, and if a hen she will acknowledge his advances by the twinkling of her eyes, nodding her head, an action of the throat as if swallowing, slightly fluttering her wings, and as she moves before him, making a courtesy, at the same time raising the shoulders of the wings, and slightly spreading her tail. On the other hand, if a cock, a battle will most likely be the result, from which the later introduced bird will generally try to escape.

Among squeakers the cock is to be distinguished by having larger size and a more prolonged squeak than the hen.

To be able to distinguish the age of pigeons is of some importance, since, although they will commonly live for about eight years, they are, after the fourth season, of no practical value for breeding purposes, and should, therefore, in a well-managed dove-house, be killed off at that age. As they grow old, the feet become rough, the eyelids thick and unequal, the eyes sunken, and the nostril-covers wrinkled. The plumage, also, in most kinds, becomes less beautiful. Young birds which have not yet moulted have a dull plumage, owing to the nest-feathers being edged with brown; while the "flight-feathers" (the quill-feathers of the wings) are small, pointed, and brownish at the tips. These last feathers usually remain till the *second* moulting in the succeeding summer, when the full plumage is attained, and serve as a mark by which to distinguish the bird till that time.

Squeakers should be paired at the age of six months; the cock and hen should be shut in a cage together, and removed from the sight of all other pigeons. At the end of two days their arrangements will be completed, and they may be set at liberty.

If, as will sometimes happen, the cock bird should desert the hen, and fly off, she will, provided she has her liberty, entice and bring home a mate from some other flock, if there should not happen to be a single male in that to which she belongs. On the contrary, if the hen should take wing, a new companion for her forsaken mate must, within a day or two, be provided, or he also will inevitably be lost.

[illegible]—The pigeon will eat and thrive upon all kinds of grain as well as upon beans, peas, and tares; nothing is better for it generally than peas, but it is well to give it other kinds of corn by way of variety. The smallest description of beans, known as pigeons' beans, forms a good food; but as they are somewhat heating, it is well to mix them with barley or oats. Tares or vetches are considered good for pigeons when they have young; but neither beans nor tares should be given in large quantities till they have been kept for a year, since they are very unwholesome when new. The seeds of hemp, and the various plants of the cabbage kind are much relished, but they are too heating to be given in large quantities, especially if the birds are kept in confinement. Hemp-seed, of which they are particularly fond, is most prejudicial, since it will cause them to become so inflamed that they cannot sit, and will induce skin diseases, causing first the feathers and afterwards the birds themselves to rot. It is, however, useful as a stimulant when they have colds or other diseases, or when it is desired to make them lay more freely. Rapeseed is milder, and may be used with more safety. For a change of diet, boiled potatoes may occasionally be given, and sometimes even a little fat bacon cut in small pieces.

Those pigeons which enjoy their liberty will provide themselves with green food, but to keep those healthy which are shut in, a salad should be provided. For this purpose, mustard, cress, lettuce, or any plants of the cabbage tribe may be sown in boxes, and placed in the dove-cot, and the birds will then pick off as much as they require.

Diseases.—Pigeons, and more particularly those of the commoner kinds, are not, when kept clean and properly fed, subject to many diseases. One from which they frequently suffer is—

Canker, which causes swellings about the head, of a disagreeable appearance and smell. This sometimes arises from the pecks of other birds, and, as a means of avoiding it, it is well, if the naked flesh on a pigeon's head is torn, to keep the wound washed with salt and water, and if this does not effect a cure in a few days, to change it for a solution of alum. But sometimes the canker arises from other causes, such as food of too forcing a nature, bad water, drinking from a tin vessel, or even the attacks of parasitical vermin. The parts affected should be rubbed daily with burnt alum and honey; and in bad cases it will sometimes be necessary to cut away the excrescence, and destroy the roots of it with caustic, after which a spare wholesome diet and plenty of exercise should be given. Canker is considered contagious, and the diseased bird should therefore be kept alone.

Megrims.—Pigeons afflicted with this disease flutter about in an aimless manner, and twist the head backwards with the beak towards the tail. No remedy is known for it.

Wet Roup.—For this, green rue steeped in the water from which the birds drink is held to be good, as also two or three peppercorns every other day.

Dry Roup is caused by cold, and is marked by a dry husky cough; three or four cloves of garlic daily is the best cure for it.

Atrophy, or Wasting Away.—Watercress has been asserted to be a certain cure for this disease, and, as pigeons have an especial craving for green food, there will be no difficulty in getting them to take it. Some persons advise that a piece of rusty iron should be placed in the water which they drink as a means of giving tone to the stomach, and it is recommended that they should be freely supplied with those kinds of food which they most prefer.

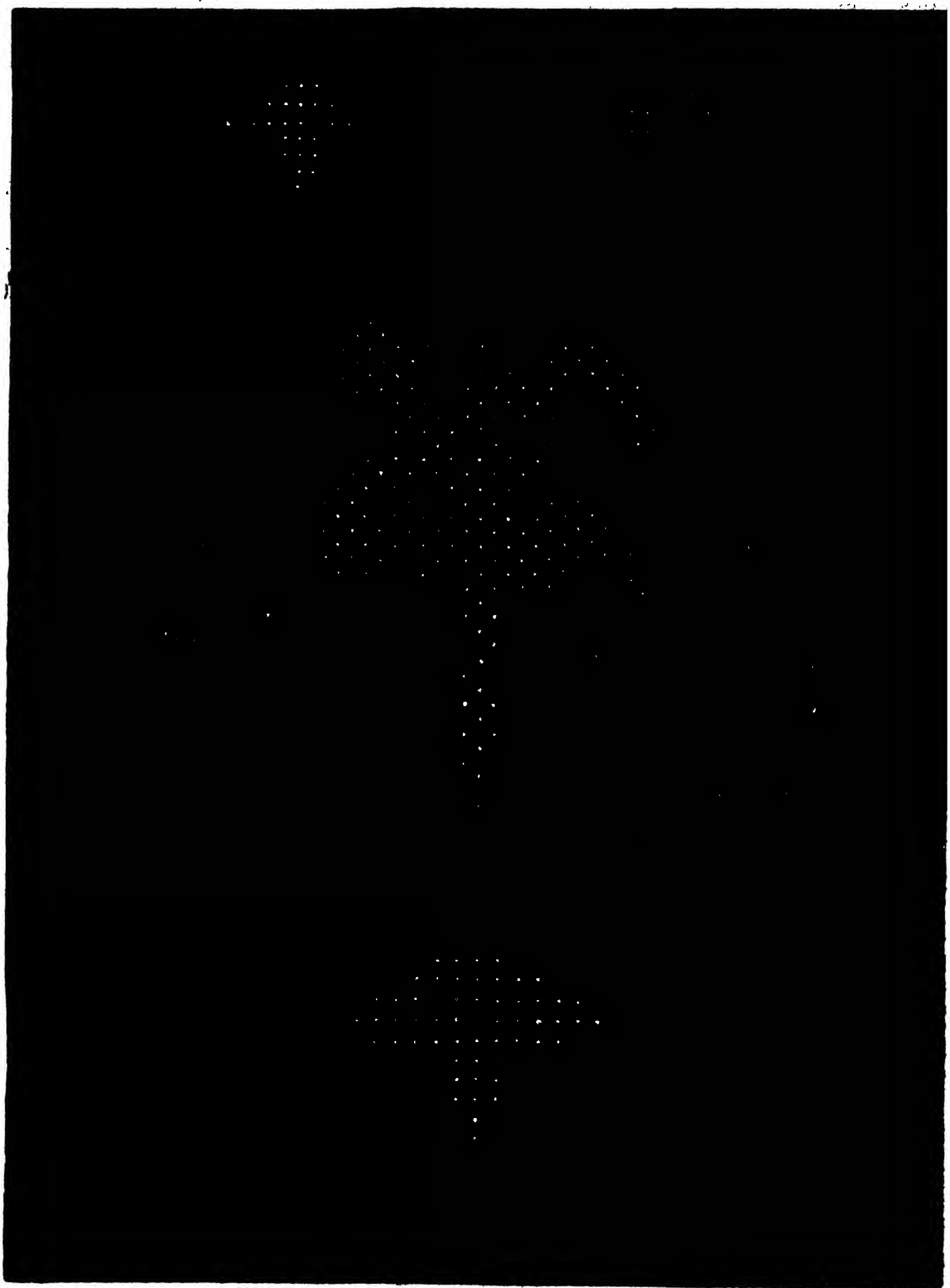
Lameness.—When the balls of the feet swell from cold, or are accidentally wounded, the parts affected should be washed with turpentine.

Difficulty of Moulting.—The bird should be put in a warm place, and stimulated by giving a little hempseed daily, or a little saffron in his water. Sometimes stumps of quill-feathers will remain in the wings and cause the bird much suffering; if so, they should be carefully drawn with tweezers.

Parasites.—Several varieties of this disagreeable class of insects attach themselves to the pigeon, and more especially if his cleanliness is not well cared for. *Feather-lice* are often numerous under the vanes of the feathers. As they find their food in the feathers alone, they do not greatly interfere with the comfort of the bird, and some persons even assert that their presence is an addition to it, a doctrine which we should consider to be somewhat doubtful. To a great extent they may be destroyed by well fumigating with tobacco. *Mites*, tiny black creatures with white streaks on their bodies, infest the chinks and corners of pigeon-boxes and nests, and attack the birds chiefly at night, causing them much annoyance. The young squabs are especially exposed to them, and are frequently made miserable, and even destroyed, by the insects getting into their ears; when this is the case, a spot of oil dropped into the ear will prove a remedy; and powdered sulphur scattered about the nests and into the feathers of the old birds will somewhat check the ravages of these pests; but it is exceedingly difficult to eradicate them when they have once established themselves. Whitewashing walls, stopping chinks, and keeping painted the woodwork of the nest-cells will tend to prevent their increase. *Ticks* are larger animals; they sometimes grow to the size of tares. They fix themselves upon the head and back part of the bird, and are most prejudicial to its general health and comfort. To destroy and guard against these creatures the remedies and precautions recommended in the case of mites should be adopted.

TO MAKE SWEET JAR.

By the following formula a sweet jar may be made which will retain its fragrance for twenty years and upwards. When roses are in perfection, gather them upon a fine dry day; pick the petals from the stalks and green parts; and when you have half a peck of rose-leaves, take a china bowl and strew some common salt over the bottom; then put in two or three handfuls of rose-leaves and strew salt over them; and so on, with alternate layers of rose-leaves and salt, till you have put in the whole quantity. Cover the top with salt, and press the leaves down gently with a plate. Let it remain four or five days, stirring, turning, and separating the leaves once a day; and when you perceive the leaves to have become very moist, and water to be drawn from them, stir, and mix among them three ounces of allspice: this forms the stock. After three or four days, put it into the jar in which you intend to keep it, and add more allspice. The following ingredients may also be added without previous preparation:—One ounce broken cloves, one ounce bruised cinnamon, one ounce nutmeg, some whole allspice, some anise-root sliced thin, six grains of musk, and any sweet essential oil you may prefer; lavender water is excellent, and a little may be added at any time when you find the jar getting too dry. The following flowers, &c., are proper to be added at such times as they come in bloom:—A handful or two of fresh-gathered violets, picked from the stalks; some myrtle-leaves; a few clove pinks, picked from the stalks; some orange blossoms; an English orange or two; and, above all, some lavender freshly stripped from the spikes. These may be added yearly. The jar should be frequently shaken, particularly at first, and should be kept closely shut down. It may be refreshed occasionally with new rose-leaves, but they must always be prepared, as at first, with salt and allspice.



BANNER SCREEN.

POINT LACE WORK.—XII.

Banner Screen in Point Lace, for a Lamp Shade or Dressing-room Ornament.—This is to be mounted on blue silk of the same size, with the edge turned in, and run down, and set on an ormolu stand. Use a light, open braid, such as is indicated by the engraving on the opposite page. The lace is worked with Mecklenburg linen thread, No. 20, and a point-lace needle, No. 8. The stitch used for the *fleur-de-lis* in the centre is *point Turque*. The upper parts of the leaves are treble *point d'Espagne*. The centre, *point de Bruxelles*, and the lower again *point d'Espagne*, treble. The root is *point d'Angleterre*. The border at top and bottom is of *point de Bruxelles* and Sorrento bars. Button-hole bars connect the design. The whole should be traced in one braid, which can easily be done by connecting the border and root at the point of the banner, or one of the leaves and border at one of the upper corners.

HOUSEHOLD LAW—XVII.

RATES AND TAXES (*continued from p. 147.*)

Compound Householders.—The class of persons thus named came into prominent notice during the debates on the Reform Act of 1867. They came into existence (in regard to the payment of rates) on the passing of the Small Tenements Act of 1850. Shortly they may be described thus:—Holders of small tenements, the rents of which are usually collected at less intervals than quarterly, being liable, as other people, to the payment of parochial rates, it was frequently found that they neglected or were unable to pay, and that parishes lost large sums of money, which had to be defrayed by the less needy householders. Even where the rates on these small holdings were paid, the expense of realising made it very questionable whether the parish gained or lost, and the matter became a serious one for all ratepaying districts. On the other hand, it was a serious thing for a small tenement-holder, with perhaps just sufficient means to pay his way, to be called upon at certain intervals to pay a sum for rates equivalent, it might be, to a whole week's wages. By the Small Tenements Act of 1850, small tenants were enabled to compound for rates in the following manner—viz., the landlord undertook to settle with the parish for rates payable by his small tenements, and was allowed for his trouble in recouping himself by extra rent, a commission in the shape of an abatement, which often ran to twenty-five per cent. The tenants paid rates without feeling much of this weight, and became entitled to the advantages secured by ratepaying. Their names, however, did not appear on the rate register. This arrangement worked well enough for both parties—the small tenement-holder and the parish—until Mr. Disraeli brought in his Reform Bill. The principle upon which that bill was based was alleged to be that a share in the government should be given only to those who shared in the burdens of government, and in carrying out this principle it seemed convenient to take payment of rates as a proof of contribution towards the general charges. Payment of rates accordingly was made the condition of receiving a vote at elections for Parliament. But as soon as this principle was adopted, the question arose, "Are compound householders entitled to vote? They cannot be said to pay rates in the strict acceptation of the words, and their names are not on the rate register," which was ordered to be the basis of the list of voters for electoral purposes. Compound householders were practically disfranchised, or rather, being enfranchised, according to the principle of the bill, they were not permitted to exercise their rights, owing to defective machinery for carrying out the principle. The Liberal party would not consent to the omission from the franchise of persons in the position of compounders, and the Reform Bill was in peril, when a proposition was made to abolish compound householders, and to make everybody pay the rates chargeable upon his holding. Mr. Disraeli (now Lord Beaconsfield) embodied the suggestion in his bill, carried it with the Reform Act of 1867, and was supposed to have established household suffrage in its widest extent. But it was soon found that small tenement-holders were no better able to pay rates in 1867 than they had been before 1850; that landlords would not lower rents in proportion to the relief they themselves had from ratepaying; and that the compound householder with his name on the register, was practically as much excluded from voting, his rates being unpaid, as he was before his name was enrolled. In Birmingham alone 16,000 summonses were taken out for non-payment of rates, the parishes suffered, and the small householders were disfranchised.

In these circumstances Mr. Gladstone's Government came into power, and, unwilling to re-open the question of principle on which the Reform Bill had been based, but determined to admit the small holder to the franchise, introduced a bill authorising the landlord to pay rates for his tenants, receiving a commission from the parish for doing so. The tenants' names remained on the register as paying rates, though the money was actually paid by the landlord, who, on the other hand, was empowered to receive by instalments what he had paid by small additions to the weekly rent. The compound householder was thus virtually restored without being deprived of his vote.

On this basis the law now rests, payment of rates giving a title to vote for members of Parliament.

Annexed is a *résumé* of the chief provisions of the important Act of Parliament (32 & 33 Victoria, c. 41) which restored the compound householder to existence, and gave him safeguards for his political rights.

1. Occupiers of tenements let for a term not exceeding three months, may deduct the poor-rate paid by them from their rents.

2. No such occupier to be obliged to pay at one time, or within four weeks, more than a quarter's rate.

3. In case the rateable value of the tenement do not, in London, exceed £20; or within the borough of Liverpool, £13; or within the city of Manchester or the borough of Birmingham, £10; or elsewhere, £8, the owner may agree with the overseers, subject to the vestry, to pay the rates for a year certain, and whether the tenement be occupied or not, and to receive a commission of not more than twenty-five per cent.

4. Vestries may order the owner to be rated, instead of the occupier, abating a certain amount of the rate.

5. Owners omitting to pay rates due on the 5th January, before the 5th June, to lose commission.

6. Where owners omit to pay rates, the occupiers paying the same may deduct the amount from the rent.

7. Owners agreeing to pay rates, to give lists of occupiers when required to do so, under penalty of £2.

8. Occupiers to receive notice of rates being in arrear, that they may protect themselves.

9. Rates unpaid by owner may be recovered by distraint on occupier's goods, but no distress to be put in until default after notice to occupier, and no greater levy to be made than for the rent due. The occupier buying out a distress, to be free to abate amount from his rent.

RIGHTS OF CITIZENSHIP.

In previous papers an attempt has been made to describe the way in which rates are assessed upon householders. It is now proposed to give some account of the rights conferred by payment of rates, and of those other rights which belong to a citizen.

Electoral Rights are the highest, seeing that the exercise of them gives a man a share in the government of the country. Until the Reform Act of 1832, the representation of the people was most imperfect, the distribution of the seats being wholly out of proportion to the numbers that ought to have been represented, and the power of voting being for the most part confined to those few whose supposed interest lay in returning members opposed to the popular aspirations. After domestic troubles and domestic dangers which at times threatened the very existence of the constitution, the Government in 1832 was induced to carry a Reform Bill which materially altered the relative position of classes.

Between the year in which certain members were added to the House of Commons by Queen Elizabeth, and the year 1832, no change took place in the numerical strength of the popular assembly, and the distribution of seats also remained *in statu quo*. But by the Act of 1832—which was not passed without great difficulty, and until after the ministers, having resigned, were induced by the king to return on condition that they might create peers enough to pass the Bill—many important changes were made. The number of members in the House of Commons was placed at 660; fifty-six boroughs in England were disfranchised; thirty were reduced to one member only; twenty-two new boroughs were created to send two members; and twenty to send one member. The number of county members was increased from 95 to 159 for England and Wales. The qualification of a voter for the county was, that he should have a forty-shilling freehold; but copyholders of £10 a year, lessees of leases for twenty years to the yearly value of £50, and of leases for sixty years to the yearly value of £10, were also admitted to vote. In cities and boroughs resident householders paying £10 of rent were allowed the franchise.

Several attempts were made, beginning with Lord John Russell's Bill in 1854, to improve upon the electoral basis laid down in this Bill; but no decided action was taken till 1865, when Mr. Baines' £6 Borough Franchise Bill was discussed and thrown out. From that time till 1867 the question of reform was warmly debated, and in 1866 led to the resignation of Mr. Gladstone's Government. In 1867 Mr. Disraeli's Bill was introduced, receiving the royal assent on the 15th of August of that year.

THE BAROMETER, OR WEATHER-GLASS.—IV

Measurements of Height by the Aneroid.—On ascending a mountain, or on being elevated in a balloon, we know that the length of the column of mercury in a barometer will decrease with the decrease of atmospheric pressure, in consequence of a stratum of air being left below. As the pressure of air arises from its weight (or the attraction of gravity upon it), the quantity of air below the barometer cistern cannot influence the height of the column. Hence it follows that a certain relation must exist between the difference of the barometric pressure at the foot and at the top of a mountain—or other elevation—and the difference of the absolute heights above the sea-level. Theory, confirmed by practical investigations, has determined that the strata of air decrease in density in a geometrical proportion, while the elevations increase in an arithmetical one; hence we have a method of determining differences of level by observations made on the density of the air by means of the barometer, and various have been the formulæ proposed for the solution of the problem of determining such measurements by that instrument. The theorems of Laplace, Poisson, Shuckburgh, &c., have been usually followed, but we give the more modern methods specially calculated for aneroid observations.

For measuring heights not exceeding many hundred feet above the sea-level, the following simple method is given by Messrs. Negretti and Zambra:—"Divide the difference between the aneroid readings at the lower and upper stations by ·0011, the quotient will give the approximate height in feet. Thus, suppose the aneroid to read at the

Lower station	30·385 inches.
Upper station	30·025 "
Difference	·360 "

$$\text{Divided gives } \frac{\cdot 360}{\cdot 0011} = 327 \text{ feet."}$$

But where greater heights and perfect accuracy is involved a more elaborate method must be followed. If the mercurial barometer were employed, a correction for instrumental variation through changes of temperature would have to be made, for which formula and tables have to be drawn up; but in the compensated aneroid, this is provided for in the construction of the instrument, as already stated, so no such correction is needed, and a simpler formula for the determination of elevations above the sea-level may be adopted.

But it is necessary to make correction for the mean temperature of the stratum of air between "the lower station" of observation on the plain, and "the upper station" on the mountain top, or in a balloon.

The temperature is taken by a thermometer simultaneously with the reading of the barometer, at the lower station, and this is repeated at the upper station. In strictness, these readings at the lower and upper stations should be taken simultaneously by two observers with duplicate instruments. When this is not convenient, or when only one person is making the observations, the readings of the thermometer and barometer should be taken at the lower station, then at the higher; then on descending, and without loss of time, the reading at the lower station should be repeated, and the mean of the first and second readings at the lower station for thermometer and barometer determined, which will give the nearest possible approach to truth.

Sir G. B. Airy's method for determining heights by the aneroid, is to subtract the reading in feet at the lower station from the reading in feet at the upper station, and the difference will give the height in feet.

If the aneroid is graduated specially for a mountain barometer, the readings in feet, it will be seen, are given concentric with the corresponding readings in inches, the mean of atmospheric temperature being regarded as 50° Fahr. in laying down such scale. In such an instrument the readings for feet are taken direct. Where, however, the aneroid is only graduated in inches, it becomes necessary to carry a set of tables that have been recently calculated by Sir G. B. Airy to show the corresponding *numbers of elevation in English feet*, and of *readings of aneroid* (or corrected mercurial barometer) *in English inches* (the mean of atmospheric temperature being 50° Fahr.).

Let us suppose the mean of readings at lower station to equal 30·048 inches, and the reading at upper station 26·379 inches, and the mean of temperature equals 50° Fahr.

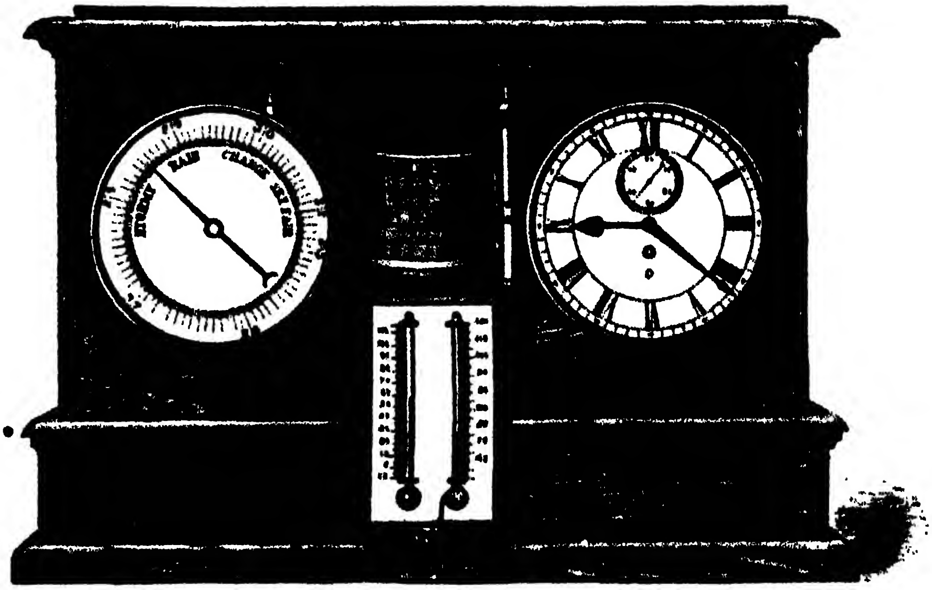
	Inches.	Feet.
At upper station aneroid	= 26·379	= 4,400
At lower station aneroid	= 30·048	= 850
Height of mountain		3,550

If, however, the mean of temperature should be other than 50° Fahr., the following correction must be made. Add together the temperatures at the upper and lower stations. If the sum in degrees of Fahr. is greater than 100°, increase the height by [illegible] for every degree of the

excess above 100°. If the sum is less than 100° Fahr. then diminish the height by [illegible] part for every degree in defect from 100°.

Should the thermometer employed be graduated in centigrade, then a 10° cent. corresponds to 50° Fahr.; if the sum in degrees is greater than 20° cent., increase the height by [illegible] part for every degree in excess above 20° cent. If the sum is less than 20° cent., diminish the height by [illegible] for every degree in defect from 20° cent.

Self-registering Aneroid.—In attempting to make a "weather forecast" after the manner of the late Admiral Fitzroy, it is essential that frequent and *regular* observations should be made and recorded, as whether the barometer is rising or falling, at what rate, and for what period, and at what date a change commenced. The deductions from such data furnished by the barometer are most important to the interests of the farmer, the mariner, the meteorologist, as also to the pleasure-seeker; but very few persons can devote time out of their business



SELF-REGISTERING ANEROID.

hours to make such accurate records of atmospheric changes, though, as with the farmer and the mariner, monetary interests may be involved in taking action according to the indications and resultant "forecasts." It is therefore very important to have every fluctuation in the atmospheric pressure recorded automatically, as by the self-registering aneroid shown in the illustration. It consists of a large aneroid and an eight-day clock, both fitted with eight-inch dials; between these is placed, vertically, a cylinder, four inches in diameter, that carries a sheet of paper, ruled horizontally, to coincide with the barometer scale divisions of inches and tenths, and vertically to correspond with seven days, again divided by thinner lines, so as to indicate noon and midnight in each twenty-four hours. This cylinder rotates in unison with the clock, being driven by it through connecting clockwork, while a pencil connected with the aneroid works in union with its action, and marks a black-dotted curved line on the paper scale, corresponding with every rise or fall, thus showing at a glance every hourly variation, and yielding, at the end of every seven days, a valuable barometrical record. At the end of every week the paper scale is replaced with a fresh one, while the one removed is dated and preserved in a portfolio. The stand is mounted with a wet and dry bulb thermometer, to render it perfect for meteorological observations. This instrument is simple in construction, so as not to be readily put out of order—being specially designed for ordinary use, and, from its handsome appearance, suited as a household ornament, as well as for public institutions or on board a ship.

The Storm-glass and Weather Indicators.—In concluding this popular description of the various forms of barometers, it will be necessary to say a few words on certain arrangements and objects that are popularly regarded as safe weather indicators. Thus in many opticians' windows may be seen a long tube partly filled with a liquid containing white flocculent crystallisations, which are constantly changing their bulk and arrangement; this is called the "storm-glass," which, it is stated, "will exactly foretell the weather, particularly high winds, storm, or tempest, on sea or land;" and the following are given as its indications:—

1st.—If the weather is fine, the substance of the composition will remain entirely at the bottom, and the liquid will be very clear.

2nd.—Previous to changeable weather, for rain, the substance will rise gradually, and the liquid will be very clear, with a small star in motion.

3rd. Before a storm, or extraordinarily high wind, the substance will be partly at the top, and will appear in the form of a leaf; and the liquid will be very heavy and in fermentation. In this it will give notice twenty-four hours before the weather changes.

4th.—In winter, generally, the substance will lie rather higher; in snowy weather or white frost, it will be very white, with small stars in motion.

5th.—In summer, the weather being very warm and dry, the substance will be quite low. To know which quarter the wind or storm comes from, you will observe the substance will lie closer to the bottle on the opposite side to that quarter from which the storm or wind comes.

Fitzroy found that, "if fixed, undisturbed, in free air, not exposed to radiation, fire, or sun, but in the ordinary light of a well-ventilated room or, preferably, in the outer air, the chemical mixture in a so-called storm-glass varies in character with the *direction* of the wind, not its force, *specially* (though it *may* so vary in *appearance* only) from

another cause, electrical tension." The composition in the storm-glass is camphor, nitre, and sal-ammoniac, partly dissolved by alcohol, &c., with water and some air, in a hermetically sealed glass tube. Professor Tomlinson most carefully examined, experimentally, this instrument,* and found that there was considerable variation in the composition of the crystallisable fluid with various makers, and that the tubes were not all sealed, as approved by Fitzroy, and the result of his investigation was that "it may fairly be concluded from these experiments and observations that the storm-glass acts as a rude kind of thermoscope, inferior for most of the purposes of observation to the thermometer."† A weather indicator very common in country cottages is dependent on the hygroscopic character of catgut. When the atmosphere is impregnated with moisture, the catgut swells and unwinds. On the return of dryness it coils closer and closer, so that if one end of a short length of catgut is fixed and the other left free, it may, by means of a wire passed through that end, be made to show corresponding indications, which, in some arrangements, take the form of an old man in a great coat standing under a porch, and a lady in summer costume under another porch. When the air is moist the old man turns out of doors; when dry he recedes, and the lady comes forth. The same contrivance may take the more imposing shape of an index-pointer, passing over a circle graduated like the dial of a wheel barometer. By altering the arrangements of the catgut, it may be made to push (by its expansion) a cowl over the head of a friar when the air is moist, and pull it back, so as to leave his head uncovered, when it is dry. Many people place great confidence in the crispness or limpness of a thin frilled frond of brown laminarian sea-weed, due to the hygrometric nature of its salt-imbued surface. Whalebone, quill, hair, ivory, and animal membranes are also sensitive to variations in the humidity of the atmosphere, and may be used in a similar fashion to the catgut or sea-weed, as very crude weather indicators.

Other crude arrangements may be named in connection with the "weather-glass"—simply warning those who would adopt them for household use that their indications must be taken "with a (large) grain of salt"—such, for instance, as the pendent barometer, which is made out of a small-mouthed vial, nearly filled with water coloured with cochineal, and suspended by a cord from the ceiling, with the open mouth downwards, when the convex or concave condition of the lower surface is thought to prognosticate changes corresponding with a depressed or increased atmospheric pressure, but as this elasticity of the confined air is also subject to variations, owing to changes of *temperature*, it follows that the oscillations of the drop at the mouth of the vial are dependent on alterations of temperature as well as atmospheric pressure, and such arrangements bear about the same relative value to the barometer—as an exponent of weather changes—that a catgut hygroscope bears to a properly constructed thermometric hygrometer, as an indicator of relative moisture.

* See *Phil. Magazine* for August, 1863.

† Since this was written, the author of this article has seen in an optician's window half a dozen of these "storm-glasses," hung in a row, each giving a different indication!

SYMPATHETIC INK.—One of the best known kinds of sympathetic ink consists of a weak solution of chloride or nitrate of cobalt. Writing executed with such a solution is invisible until it is warmed, when it appears green or bluish, disappearing on exposure to moist air; the explanation being that the anhydrous chloride and nitrate of cobalt are deep green or bluish, whilst the hydrated salts are very pale pink—invisible in small quantities of salt.

HOUSEHOLD DECORATIVE ART.—XXXVI.

CONE-WORK.

WE now propose to offer a few suggestions for adding to the decoration and attraction of home—the result chiefly arising from the experience of a rather lengthy residence in the "Far West." The young ladies of America understand well the art of turning everything to account, as well for ornament as for use. And what has hitherto by ourselves in England been considered as of no value, has by American taste been converted into pretty and useful articles, which make not only pleasing additions to one's own home, but provide an acceptable gift to a friend. The collecting the necessary materials for the execution of this work will be found an interesting pursuit, and will add much to the pleasure of a ramble in the woods. The best season of the year for procuring the requisites is in the autumn. Make up a party to go off on an exploring expedition, and do not forget the children, for they as much as any will enjoy a day in the woods, coupled with the important commission of filling their little baskets. Make as varied a collection as possible of cones, or, as some say, "fir-apples," the husks of the beech-nut, acorns, with and without the saucer part, oak-apples, the cone of the cedar—and, indeed, of all coniferous trees; nuts of different kinds, including the pea or ground-nut; but this particular kind can, we believe, be only obtained in this country by purchasing of a fruiterer. Even the knotted ends of small twigs mix in very nicely—the greater the variety the more pleasing the result. You will be surprised to learn how much lies at your feet of interest, beauty, and use, which hitherto you have trodden upon as worthless, and which is available for domestic ornamentation.

Having collected a goodly stock of what the woods and lanes can give you, the next step is to prepare your supply for working. It is a good plan to sort the different things, putting each kind in a little box or basket: this method will be found to expedite matters considerably. The large cones must be pulled to pieces—that is, strip off singly each scale, as they are needed for the foundation of the work. Take care of the extreme end or point of the cone, as you will find it come in nicely to add to the variety.

We will commence our lessons in cone-work by giving instructions for making a card-basket. Procure some strong cardboard, which cover with brown paper by means of glue or paste—the former is to be preferred; then, having chosen a shape, say Fig. 1, cut out of the cardboard shape A, Fig. 2, about nine inches by seven; by carefully cutting with a knife you will save the centre piece, B, which forms the bottom; a straight strip about an inch and a half wide, and the length of the circumference of B, the centre piece being cut out, will give C. The handle can be straight, or shaped according to taste, as also the height. These several pieces must be strongly stitched together, the straight strip round B on its edge thus forming a sort of tray. Now take C and sew its inner edge to the upper edge of the tray; in all cases sew over and over, and as strongly as possible. After this is complete, with the fingers gently bend margin C, so as to make it curve downwards, which adds much to the gracefulness of the shape.

You now proceed to ornament your pasteboard basket. Begin by stitching, with strong black thread, all round the edge of C, the scales which you stripped off the large cones; they must be put on singly, and should overlap each other slightly. A second row must be added; then two rows the reverse way. You will now have a space uncovered with these scales, on this you must stitch all the various kinds you have in a rich wreath or border—the greater the variety the better. It will, of course, entirely depend upon the taste and ingenuity of the

worker whether a well-arranged border round the basket be the result or not.

Care must be taken to entirely cover the cardboard, as spaces showing the framework would look bad. Many small things can be put in by means of glue; as, for instance, an acorn here and there, a tiny oak-apple, the extreme point of a cone, besides other things which will doubtless easily occur to the fair operator. A little ingenuity will suggest many ideas, which will all tend to the perfection and beauty of the work.

The handle requires to be done in the same way as the other part of the basket; but one row of the scales stitched at each edge will be found to be sufficient; and in making the wreath the smallest of the cones, &c., should be used, taking care to select the variety which has already been brought into use in the basket. It is a good plan to stitch a round bonnet wire along the under side of the handle, which will strengthen it considerably, as well as allow of its being bent to a prettier, or the desired form.

Having proceeded thus far, the next thing to be done is to varnish your work, for which the best copal varnish must be used, applied with a camel-hair pencil of a moderate size, the utmost attention being paid to insert the brush into every little crevice; do not omit any part. Having thoroughly varnished your basket, put it away in some place entirely free from dust, and let it remain a night, so that it may be perfectly dry before lining it. You may now make the lining, which should be of silk or satin, the colour, of course, as taste dictates; some bright colour looks best, such as amber, brilliant green, rose, or blue. If intended for a gift, it is wise to choose a colour which will harmonise either by contrasting or matching the furniture of the room it is going to be placed in. Amber does well for almost any other colour, and contrasts admirably with the brown tints of the cones. Having made your choice, cut a piece of wadding the shape and size of the bottom of the basket, and also of the strip going round. Cover these on one side with the silk, and then stitch neatly together in the form of the basket. Put round the top a quilling of narrow satin ribbon, the same shade as the silk, and after having done the handle in the same way, and stitched it very strongly to the basket, put in this lining, which will fit without any further sewing. The underneath part of the basket must have paper pasted over it to hide the stitches, and render your work perfectly neat and tidy. The basket will now be complete.

Fig. 3.

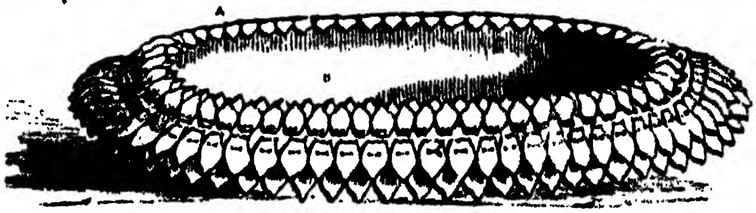


Fig. 2.

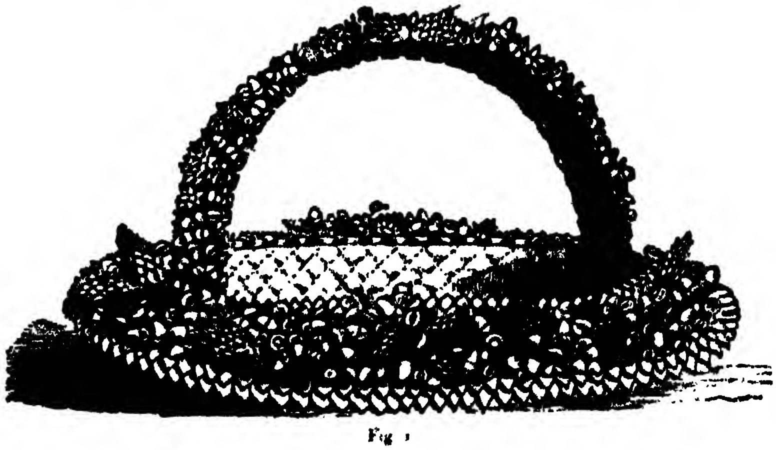


Fig. 1.

A variety of both useful and ornamental articles can be produced in this interesting and elegant work, possessing, as it does, the charm of novelty, in being composed of the productions of Nature. One of the nicest things to be made in it, is a bracket for the wall, which will have the appearance of carved oak. We will give instructions for making one, which will serve as well for other articles where the groundwork requires to be wood.

When you have selected a suitable and tasteful design, get the foundation made in common deal, unplaned will answer quite well, but have it stained a dark brown. Then, with some very strong glue, stick on the different kinds of cones, acorns, nuts, &c., in a tasteful manner. Fig. 3 will give you an idea as to how a bracket looks when finished; but the arrangement must rest with yourself—a cluster of acorns designed to represent a bunch of grapes looks well: care must be taken to entirely cover the wood or foundation of the bracket. Of course, as in the case of the basket, varnish must be applied at the completion of the article.

Very nice spill cups can be made in precisely the same way, using empty wooden boxes. Very handsome boxes for envelopes, stereoscopic slides, &c., can be made by tastefully covering old cigar-boxes. Stands for hyacinth glasses, or vases of flowers can be produced by covering empty boxes in which gentlemen's collars have been kept. In this case the cones must be stitched on, as was done in the basket, using the "scales" as the foundation. In fact, the cones may be applied to the decoration of a great variety of articles which would be otherwise useless, and perhaps meet the fate of household rubbish generally.

SUGAR.

ALTHOUGH sugar has long been known in Europe, it is only within the present century that it has ranked among the necessaries of life. From the time of its first importation from the West Indian colonies, which took place about the middle of the seventeenth century, it has, indeed, been a comparatively common luxury, but previous to that time it was regarded as a rare and costly dainty. To the inhabitants of Northern Europe it was first made known by the Crusaders, who met with, and acquired a taste for it, in the East. In Southern Europe its use is more remote. Mention is made of it by the writers of ancient Rome, but whether the sugar known to the classic nations, and which was brought from India, was like our own, made from the sugar-cane, is not certain; from the name given to it, it would seem more probable that it was prepared from the juice of the cocoa-nut palm.

But, however this may have been, it is clearly ascertained that in India and China the cane has been cultivated and sugar prepared from it, from the most remote times. For its discovery the Hindoos account by the following tradition :—

Once, in very early ages, a vessel from the Indian peninsula sailed into the distant parts of the Eastern seas. It happened to touch at a small uninhabited island, and, as one of the crew was so sick as to be apparently at the point of death, his fellow mariners put him on shore and left him to die. Some months afterwards they happened to pass by the same island, and again landed: when to their surprise they found their comrade not only alive and well, but grown remarkably stout. On their asking how he could have lived in a place which apparently was incapable of affording food, he pointed to certain plants, by eating which he had, he said, been restored to health and afterwards sustained. When the voyagers sailed for home they took with them their comrade, and also the roots of this wonderful plant, which was afterwards carefully cultivated in their own country, and was none other than the sugar-cane.

From the East the art of growing and preparing sugar was brought westward by the Saracens. Under their rule the cane was extensively grown in Egypt, and was introduced in the ninth century into their European dominions in Sicily and Spain. In the twelfth century the Venetian merchants obtained considerable supplies from the two former countries for the markets of Central and Northern Europe, to which a knowledge of and taste for this new luxury had now been carried by the Crusaders. Sugar cultivation continued to flourish over a great part of Spain, and spread from thence to Portugal and the Canary Islands; and, on Columbus making his second voyage to the newly discovered lands of the western hemisphere, he carried the sugar-cane to the West India Islands, which, from that time, have continued to rank among the chief sugar-producing countries of the world. At present, although plantations of cane still exist in Southern Europe, the great sugar countries are the West Indies, Venezuela, Brazil, the Mauritius, British India, China, Japan; the Sunda, Philippine, and Sandwich Islands, and the southern districts of the United States.

Of the sugar-cane there are many different kinds, but all the more valuable appear to be merely varieties of the *Saccharum officinarum*. Of these the Creole, the Batavian, and the Tahitan are, commercially, of chief importance, and more especially the latter, which has now almost superseded all other descriptions of cane in the West Indies, America, and the Mauritius; and which promises to do so in the East Indies. The Tahitan cane grows to a larger size and yields more sap than the other varieties, and, although the juice is comparatively less sweet, the plant is found to be more profitable.

The sugar-cane is about two inches in diameter, and eighteen to twenty feet high. Like all plants of the grass tribe, it consists of a succession of joints, and between the joints are numbers of cells in which the saccharine juice is formed. A sugar plantation, when the canes have reached maturity, forms a most beautiful object. "The cane is of a bright and golden yellow, and where exposed to the sun is streaked with red. The top is of a darkish green, but as it becomes dry it assumes a russet yellow colour, with long and narrow leaves hanging down, from the centre of which shoots up an arrow, like a silver wand, from two to six feet in height, and from the summit of which grows out a plume of white feathers, which are delicately fringed with lilac." Being originally a bog plant, the sugar-cane delights most in low and moist soils, and it requires a hot climate. Within the tropics the roots will continue to throw up canes for twelve or fifteen years, but towards the northern limits of the sugar-producing zone they become exhausted in a single season. The sugar-cane has been widely distributed by Nature, and wild plants have been found growing in Asia, Africa, America, and the South Sea Islands.

When the canes are ripe, they are cut and crushed between rollers to express the juice. The liquor is then warmed and lime-water is mixed with it to check any tendency to fermentation, and to neutralise any free acid it may contain. After this it is boiled, and the scum or impurities which rise to the surface kept skimmed off, till it becomes a thick syrup, when it is poured into wooden coolers, where it gradually crystallises; about twenty-four hours, more or less, is required for cooling, and the more slowly this is accomplished the larger will be the grain of the sugar. From the coolers the sugar is removed to large casks, the bottoms of which are pierced with holes through which the molasses or treacle drains away. This completes the process of sugar-making as usually carried out in our own colonies, and the result is the raw sugar of commerce. The crushed canes, after the juice has been pressed out, are called *trash*, and are used as fuel in the boiling-house; while from the scum and other refuse rum is distilled.

Recently, however, considerable improvements on this method have been introduced, and are being freely adopted in our sugar-growing dependencies. Superior machinery has been invented for crushing the canes. The vacuum-pan (in which, by removing the pressure of the atmosphere, boiling can be accomplished at as low a temperature as 150°) is used for evaporating. The superfluous moisture from the juice, which is first filtered through bags and animal charcoal, and the molasses, instead of being merely allowed to drain from the crystals, are forced off by the centrifugal machine. All these improvements tend to economise time and labour, and to produce a better sugar; and promise to make sugar-growing once more a remunerative occupation in our West Indian colonies.

In most of the foreign sugar-growing countries the process of cleansing is carried farther than in our own. The raw sugar is placed in large earthen moulds, and a quantity of thin clay is put over the top. The water from the clay gradually penetrates through the sugar and washes off some of the remaining molasses from the crystals, and afterwards escapes through an aperture left for that purpose in the bottom. Sugar thus cleansed is known as *clayed* sugar.

The refining of sugar is generally accomplished after its shipment to Europe. The raw sugar is dissolved in large tanks with hot water, and bullocks' blood is stirred in. The temperature of the tank is then increased, and the albumen of the blood coagulates and rises to the surface in the form of a thick scum, bringing with it most of the impurities of the sugar; and is then removed. The liquor is next passed through bag-filters and animal

charcoal, from which it flows as pure sugar dissolved in pure water, and the water is got rid of by evaporation in the vacuum-pan. The sugar is then put into moulds, and kept warm for some time, that the treacle may run off through a hole in the bottom; and a solution of pure sugar is poured over the top, which washes off any remaining colouring matter from the crystals. The liquor which flows off is again boiled up to make inferior loaves.

Sugar is valuable as an article of food from its furnishing fat and animal heat to the body, but, from its deficiency in nitrogen, it is incapable of supporting life alone. It is composed of oxygen, hydrogen, and carbon; and as flour is composed of the same elements, and contains in addition a proportion of nitrogen, it will be seen that, as food, an equal quantity of flour is more valuable than one of sugar. As compared with flour, sugar is, therefore, a dear food; still, at its present low price it is, as compared with many articles, a cheap one, and its extreme wholesomeness may be argued from the fact of Nature using it so largely in the composition of milk. On the sugar plantations also where the negroes eat freely of the canes, all are fat and healthy at the sugar harvest. The old belief that sugar destroys the teeth is without any foundation whatever, and was probably invented by the frugal housewives of a former generation to preserve what was then a costly dainty from their children. Two or three centuries ago both sugar and treacle were looked upon as sovereign remedies for a number of diseases, but they are now known to be altogether without medicinal properties.

Although in England sugar made from the sugar-cane is used almost exclusively, an article identical with it in composition and properties may be made from a variety of other vegetables. In India and Ceylon sugar is made in considerable quantities from the sap of the cocoa-nut tree, and in other countries from that of other varieties of the palm family. In the Northern States of America the sap of the maple is used, and almost the whole of the sugar consumed in many parts of the continent of Europe is prepared from beetroot. Maize-stalks, carrots, parsnips, the fleshy flowers of the *Bassia latifolia* (an East Indian tree), and many other substances, have also been made to yield sugar, but not in sufficient quantities to be of commercial importance.

Maple sugar is made throughout the whole of the northern parts of the United States and the adjacent districts of Canada. The tree which furnishes it (the *Acer sacharrinum*) is of great beauty in its shape and foliage, and also supplies a valuable wood to the cabinet-maker. In the early spring a hole is made in the trunk of the tree with an auger or gouge, and a spout is fixed in, through which the sap is allowed to flow into a trough placed beneath. When sufficient juice is collected it is boiled, and the impurities are allowed to settle to the bottom or are strained out. The clear syrup is then boiled down into sugar over a slow fire, clarified with whites of eggs, and afterwards crystallised. About four pounds of sugar are, upon the average, obtained from a tree, and by this simple and easy process the New England farmers procure the sugar needed for use in their families; for maple-sugar is chiefly made for home use, and little of it finds its way to market.

Beetroot sugar is now as commonly used throughout France and Belgium, and much of Germany and Russia, as that procured from the cane. Between 1,000 and 2,000 manufactories of this article are said to be at work on the Continent, and a few have been established in our own country, though this particular branch of industry is less in favour on our side of the Channel in consequence of the greater ease with which we can obtain our supplies from the colonies. A Berlin chemist named Margraf discovered in 1747 that beet contained a considerable amount of sugar; but no practical result followed till 1796, when another chemist of the same place, Achard, demonstrated that from three to four per cent. of saccharine matter might be procured from that root. The long wars which followed the first French Revolution, and raised the price of colonial sugar to four and five francs per pound, proved favourable to the discovery. The First Napoleon, whose policy it was to adopt every expedient which might injure English trade, encouraged the beet-sugar manufacture by premiums and bounties, and when once established it was found sufficiently remunerative to exist without protection, and since 1848 beet-sugar has fairly competed with that of the colonies.

The ordinary process of making it is by first washing and pulping the roots, and pressing out the juice through canvas bags, after which it is limed, boiled, and crystallised in the same manner as cane juice, and the produce cannot, when refined, be distinguished from the sugar made from that material. It is, however, more difficult to crystallise than cane sugar, and, owing to the disagreeable taste of the essential oil of the beet, the molasses are useless except for distilling or for the manufacture of potash. The pressed root is used for feeding cattle, and for paper-making. All the different kinds of beet are found to answer for sugar-making, but they are not all of equal value. The best is the white (*Beta alba*), which is a small and firm variety; next is the yellow, then the red, and lastly the common field beet.

All these sugars, though procured from different sources, are in their composition precisely the same as that made from the sugar-cane, and are indeed called cane-sugars by the chemist. There are, however, various other kinds, such as milk-sugar, which exists only in the lacteal fluid, and grape-sugar, which forms the basis of our fermented drinks. These differ in the proportion of their constituents only. Cane-sugar is the best and most perfect form of sugar known, contains the largest amount of carbon, and crystallises most readily. Grape-sugar is of a much lower order; it is deficient in sweetness, and is prone to fermentation. It is easily made from potato-starch, and even from linen rags, by treating them with dilute sulphuric acid, and was some years ago manufactured in such quantities for the adulteration of cane-sugar, that the excise authorities were obliged to interfere.

It is held by many persons to be economical to purchase the coarse brown sugar. The policy of so doing becomes questionable when we consider that the amount of water and of various impurities retained by such sugars is very great; that it is to such samples that the adulterations of the unscrupulous dealers are confined, and that, moreover, they are rarely free from forms of animal and vegetable life. When examined under the microscope, poor moist sugars are found to be mixed with woody fibre, portions of cane which have not been removed, and with grit; frequently also with particles of flour with which they are adulterated, at the same time to increase their weight, to absorb superfluous treacle, and to give a whiter colour. Sporules of a kind of fungus are also met with, not unlike those of the yeast plant; and, almost invariably, and often in considerable numbers, a most disgusting form of animal life. This is the *Acarus sacchari*, or sugar mite, a creature almost similar in appearance to the itch insect, which increases rapidly and is most tenacious of life. Dr. Hassall thinks it probable that the grocer's itch, a complaint common with those who handle sugar, may be caused by this animal; and after a long and careful investigation of many samples of sugar, he found himself compelled reluctantly to pronounce "that the brown sugars of commerce are, in general, in a state wholly unfit for human consumption." The lump sugar, on the other hand, he found to be pure and wholesome, as also the sugar candy, crushed lump, and, generally, the white, large-grained moist sugars of the East Indies. Between the high-priced and low-priced lump sugars there appears to

be no difference in any material point, the cheapest being little inferior except in colour.

Good moist sugars may be distinguished by the eye, by being light in colour, very dry, and highly crystallised; the impure are dark, small grained, imperfectly crystallised, and often present a damp, heavy, earthy appearance. Good sugars, when touched, should not feel sticky or clammy, but perfectly dry. Another test is also to be found in the papers in which they are wrapped. Grocers usually employ a thick and porous paper for this purpose, that it may absorb the superfluous moisture of inferior sugars; and if the article be allowed to remain in the paper for some time, it will, if bad, stain and saturate the paper. So great is the quantity of water found in some poor moist sugars, that Dr. Hassall questions whether—setting aside all considerations of purity, cleanliness, and health—any person can afford to buy them. Decidedly, in our opinion, no person who pays due regard to real economy can afford to do so.

THE TOILETTE.—XVII.

WHITE HANDS, ETC.

How the Hands may be preserved White and Soft.—In the first place, perfect attention to cleanliness must be remembered when any employment compels a person to make much use of the fingers; in the next, the soaps used must be such as are mild and emollient. The kind of soap is a great consideration, and any trouble in procuring good soap is well repaid, for the ladylike appearance produced by soft white hands is undeniable, and by using good soap even chaps and chilblains may be in a measure, if not entirely, prevented. Soaps containing an improper proportion of soda make the skin rough and dry, and the use of soda or acids has the same effect. Sand soap or pumice-stone will remove roughness, and is especially useful to ladies who do much needlework, as they—but especially the pumice-stone—will remove the roughness on the fore-finger of the left hand, caused by the needle; but in using either sand soap or pumice-stone, care must be taken that the nails are not scratched. Warm water cleans the hands more readily than cold, but they should be afterwards rinsed in cold water, otherwise they soil sooner again, and too frequent washing discolours the skin instead of improving it. When washed, the hands should be carefully dried with a rather coarse towel. Friction produces circulation and improvement in appearance; but to preserve this, cold winds and rain must be guarded against by warm gloves and muff. Stains on the fingers from ink are removed by the application of spirits of hartshorn While washing the hands drop the hartshorn on the fingers, rub and wash them until the stain is removed, which will be very quickly, especially if immediately applied. Stains from fruit, especially walnuts, may be removed by rubbing the fingers immediately with salt and then washing. If the hands become warm while working, wash them in *warm* water, and puff them with violet powder; and if the hands are habitually moist the same plan may be adopted, as cold water tends to increase the moisture. After washing the hands and well drying them, the almond tablet may be rubbed over them lightly, and the application will be found to produce a very agreeable sensation of softness to the skin as well as whiteness.

The Hands and Face in Hot Weather.—After a journey or long walk on a warm day, it is most refreshing and beneficial to bathe the face and hands in *very warm water*, and from the face it will remove the unpleasant redness and heat in a very short time, and impart a cool and delightful sensation. The application of cold water to the face and hands when heated from fatigue or exercise is very injurious to the skin, producing redness and eruptions that are seldom if ever removed. By the addition of a little spirits of wine or gin to the warm water, sun-burns will be more likely prevented than by the simple application of hot water, but after a hot walk the face and hands should be bathed for at least a quarter of an hour, the hot water added as the water gets cold. When fatigued or warm, with or without exercise, a few drops of Condy's fluid (red) added to the water in which the hands and face are bathed or washed produces a very refreshing, invigorating effect, and a teaspoonful added to the water of the bath is also very beneficial. While on the subject of baths attention is directed to the efficacy of tincture of arnica. After great fatigue, if a bath is not at hand, to the foot bath may be added a few drops (sixty) of the tincture, and all fatigue will be speedily removed if the feet are allowed to rest in the bath about a quarter of an hour, and the hands and arms be also bathed in the same way. After rowing or driving, ladies will find these directions very useful.

ODDS AND ENDS.

Paste for Modelling.—A composition, from which any kind of models may be moulded, is prepared by boiling together in water, paper, glue, and chalk, and mashing them into a very thick paste. Architectural models and statuettes may be made from this paste. The paper serves to bind together all the other materials.

Poison for Flies.—A good poison for flies may be made by boiling quassia chips in water into a very strong decoction, and then sweetening the liquid with treacle or sugar. This fly poison may be used with safety, as it is not injurious to human beings.

Copying-ink.—An excellent copying-ink, for the purpose of taking impressions of a letter by means of a copying press, may be made by adding glycerine to common writing-ink. The glycerine serves to keep the writing moist for a considerable time.

To prepare Dextrine or British Gum.—This substance, which possesses nearly all the properties of gum arabic, and which is exclusively used in the arts for similar purposes, may be easily prepared by moistening one thousand parts of potato starch with three hundred parts of water, to which two parts of nitric acid have been previously added. This mixture is then to be allowed to dry, and is afterwards placed in an oven, and kept at the temperature at which water boils (212° Fahr.) for about two or three hours.

To make French Indelible Ink.—This may be prepared by dissolving Indian ink in either a mixture of dilute muriatic acid in water, or a very weak solution of caustic potash. If steel pens are to be employed in writing with it, the latter fluid is to be preferred; but if quill pens are used, the former liquid is the best.

A Pretty Glass Card-basket.—Procure, at a glass-cutter's or glazier's, six pieces of ground glass, four inches square; and one piece for the bottom having six sides of four inches each, to fix the six pieces to. Each piece of glass is bound with coloured ribbon; the ribbon sewn edge to edge, to fix the pieces together; the top of each joint finished with a bow. The basket may be made more open, by having the glass cut this shape, instead of square. To ornament the glass, there are many ways. A pattern may be formed by painting it in copal varnish with a camel-hair brush. The pattern will be transparent or bright; or, by dissolving red sealing-wax in a phial, with sufficient strong spirits of wine to render it as thick as gum, the pattern may be made with a camel-hair pencil, with a very pretty effect. A box may be made with a lid, to match the bottom, and ornamented according to taste. The result will be a remarkably pretty and tasteful ornament.

CANDLES.—II.

MANUFACTURE, VARIETIES, ETC. (*continued from p. 144*).

HARD candles, which will not drop grease when carried about the house, are recommended for chambers. Of this description are the Mortar night-lights, burnt in a sort of tin pan with a reflecting back, which may have been taken from a practice in vogue more than two centuries ago. In the "Memoirs of Charles I." is described the night-light used in the king's chamber, as "a cake of wax set in a silver basin, that then, as in other times, burned all night."

It is told of Alfred the Great that, before the invention of clocks, he measured the time by burning wax-tapers, each divided into twelve parts, or inches, of which three would burn for one hour, so that each taper would be consumed in four hours; the six tapers being lighted one after the other, lasted for twenty-four hours. But this story lacks authenticity. Still, there is nothing very questionable in this mode of Alfred's to measure time, and possibly it may have suggested an "improvement," which was patented so recently as 1859, and which consists in making marks, on the side or around the sides of candles, either by indentation or colouring at intervals, and at equal distances apart, according to the size of the candle, to indicate the time by its burning; the marks to consist of hours, half-hours, and, if considered necessary, quarter-hours, the distance to be determined by the kind of candle used; and the mark was made either in the process of manufacture, or afterwards.

Common candles are made to resemble wax-lights by dipping them for five to ten seconds into spirits of wine, in which are dissolved, by gentle heat, gum benzoin and resin mastic.

Paraffine candles are made by melting paraffine, and running it into candle-moulds, heated to the same temperature, or rather higher. After the moulds have stood for a few minutes to allow the air bubbles to escape, they are plunged into cold water, when the sudden cooling of the paraffine prevents it forming itself into crystals. The candles are nearly transparent, and may be drawn freely from the pipes. The paraffine candle is stated by the makers to burn with an intense light, and to require an unusually small wick: it may be described as a sort of gas-candle.

INTERIOR OF A CANDLE MANUFACTORY.

Spermacceti has only been of late years extensively used in candle-making. Formerly, spermaceti was only used as a medicine, and annually great quantities of it were thrown into the Thames as useless—the quantity brought to this country being so much more than was required for medicinal purposes. It has, however, become valuable since candles have been made of it, mixed with tallow or wax: seven thousand tons were brought into England in 1831. There was formerly a common loathing and dislike to spermaceti, because it was absurdly thought to be "dead men's fat."

At one time arsenic was much employed in the manufacture of candles, to improve the brilliancy of their light; and one pound of arsenic to twenty-eight pounds of stearine was the quantity frequently employed. The

proportion of the poison became increased in the competition of the candle-makers. At length the public grew alarmed at the dangerous practice which they themselves had encouraged, for the makers at first only employed a very small quantity of arsenic, which they thought was necessary to be mixed with the stearine. The subject was experimentally examined by a committee of the medical profession, who reported the vapour arising from the combination in these arsenicated candles to be prejudicial. The use of arsenic was then discontinued by candle-makers, it having been ascertained that a small quantity of magnesia, or chalk, acts similarly to the arsenic on the stearine.

Rushlights, or candles with rush wicks, are of the greatest antiquity; for we learn from Pliny that the Romans applied different kinds of rushes to a similar purpose, as making them into flambeaux and wax candles for use at funerals. The earliest Irish candles were rushes dipped in grease. Aubrey, writing about 1673, says that at Ockley, in Surrey, "the people draw peeled rushes through melted grease, which yields a sufficient light for ordinary use, and is very cheap and useful, and burns long." This economical practice was common towards the close of the last century. There was a regular stand for holding the rush in burning.

The Rev. Gilbert White, in his "Natural History of Selborne," tells us:—"The proper species is the common soft rush, found in most pastures by the sides of streams and under hedges. Decayed labourers, women, and children gather these rushes late in summer. As soon as they are cut, they must be flung into water, and kept there, otherwise they will dry and shrink, and the peel will not run. When peeled, they must lie on the grass to be bleached, and take the dew for some nights, after which they are dried in the sun. Some address is required in dipping these rushes into the scalding fat or grease. The careful wife of an industrious Hampshire labourer obtains all her fat for nothing, for she saves the scummings of her bacon-pot for this use; and if the grease abound with salt, she causes the salt to precipitate to the bottom by setting the scummings in a warm oven. A pound of common grease may be procured for fourpence, and about six pounds of grease will dip a pound of rushes, which cost one shilling, so that seven pounds of rush-lights will cost three shillings. If persons who keep bees will mix a little wax with the grease it will give a consistency, render it more cleanly, and make the rushes burn longer; mutton suet will have the same effect. A pound avoirdupois contains 1,000 rushes; and, supposing each to burn on an average but half-an-hour, then a poor man will purchase 500 hours of light—nearly twenty-one entire days—for three shillings. According to this account, each rush before dipping, costs one thirty-third of a farthing, and one-eleventh afterwards. Thus, a poor family will enjoy five and a half hours of comfortable light for a farthing." An experienced old housekeeper assured Mr. White that one pound and a half of rushes completely supplied her family the year round, since working people burn no candle in the long days, because they rise and go to bed by daylight. This simple piece of domestic economy belongs to the last century.

Improved Chamber Light.—The rush being apt to fail, and the oil-light being objectionable, the following contrivance is an improvement on the old fat-light with a paper wick.—Provide a two-ounce gallipot, and fill it with any kind of kitchen fat. Trim it with about half an inch of the common wax-wick sold at the tallow-chandler's, stuck into a thin slice of wine-bottle cork, upon which first place a strip of stout blotting-paper. The object in using the bibulous paper is that it regulates the supply of fat to the wick.

The comparative light of gas, candles, and lamps, has been experimentally decided by Dr. Ure, Dr. Fyfe, and others. Pectet determined what would be the value of different kinds of candles sufficient to produce a given quantity of light, as decided by Carcel's lamp as a standard. They rank in the following order, the first being the cheapest:—Tallow candles, six to the pound; ditto, of eight to the pound; pressed tallow; stearine; spermaceti; wax; the spermaceti being the least, and the pressed tallow the greatest. Dr. Ure gives the relative light for a stated price, or the relative cheapness of a given quantity of light amongst several varieties of lamps and candles, as placed in the following order:—Hot oil lamp, with southern whale oil; Carcel's lamp, with sperm oil; hot oil lamp, with sperm oil; hot oil lamp, with cocoa-nut oil; French lamp, with sperm oil; mould tallow candles; stearic acid candles; cocoa-nut stearine; spermaceti candles; and wax candles: the first being in point of economy the cheapest, and the last the dearest. Dr. Fyfe's experiments embrace a larger number of sources of illumination. Affirming a given intensity of gas-light as a standard, he experimented on ten varieties of candles, and found their relative cheapness in producing the given degree of light, to be as follows:—Tallow with single wick, cocoa-nut, composite, palm, tallow with double wick, wax, diaphane, margarine, spermaceti, and composite.

In another table Dr. Fyfe shows composition candles to be nearly thirty times as costly as gas for an equal intensity of light. Dr. Ure has ascertained that a mould candle will burn half an hour longer than a dipped candle of the same size, and give rather more light. The doctor has also proved that in candles generally, the larger the flame, the greater the economy of light.

Candle-making has now become a scientific manufacture, whose elegant modifications of the more costly wax-lights give improved light for less money. In purchasing wax, spermaceti, or composition candles, there will be a saving by proportioning the length or size of the light to the probable duration of the party. Mixed wax and spermaceti candles, four to the pound, will last ten hours; short *six* will burn six hours; and a *three* twelve hours.

That candles improve by keeping is well known. A quantity of air and water are held in solution in all candles which have not been kept for some time; hence, those made in March are better than others, evaporation having generally taken place before they are required for use, owing to the length of the days.

There are many curious little pieces of mechanism patented of late years, the objects of which relate principally to the burning of common candles, or the mode of adjusting them into the candlestick. One consists of a candle-shade constructed in a circular ring, which ring is suspended from a conical cap, which rests on the top of the candle; as the candle burns, this cap sinks with it, and by that means the shade is kept at a constant height relatively to the level of the flame. Another contrivance affords the means of adjusting any candle, large or small, to a large candlestick, by having a semicircular piece of brass, which is made to press against one side of the candle in the socket. A similar contrivance for the same object consists of a pair of wedges, placed one on either side of the lower end of the candle. Self-fitting candles, graduated and grooved at the lower end, so that they may fit candlesticks of any size, are now largely manufactured, and deserve commendation on the score of cleanliness, getting rid of the wedges of paper often employed, and facilitating the otherwise not very agreeable process of setting up a candle.

The ozokerit candle (the name from the Greek—*ozo*, I smell of; *keros*, wax) is made from a mineral substance, found hitherto principally in Austria, Moldavia, the Caucasus, and near the Caspian Sea. From this raw material is distilled an oil, from which is obtained by hydraulic pressure the ozokerit, which is refined and

whitened, and being melted the candles are cast in moulds, and come out with a brilliant surface. But the greatest advantage claimed for these candles is their high melting point, which ranges from 140° to 143° Fahr., and the dry, wax-like character of the material. They burn with a large, white, and powerful flame, and give a most brilliant light without smoke, with a dry cup, like a wax candle; and from their extreme hardness are especially adapted for use in heated rooms, whereas the great beauty of paraffine candles is not available for the ball-room. Again, ozokerit is as useful as wax or stearine, cheaper than the former, and handsomer than the latter.

DOMESTIC MEDICINE.—XXXIX.

INSANITY (*continued from p. 142*).

Insanity Proper is a very important subject, and it is important that we try to make it generally intelligible. Great changes are likely to come over the scientific definition of insanity. We shall not perplex our readers, however, with all the subtle distinctions that have been drawn by those who have specially studied the diseases of the mind; we shall aim only at such a description of insanity as commends itself to common sense and sound reason. We shall endeavour to assign the principal causes of insanity; and, in connection with these, we shall try to ascertain whether insanity is increasing or diminishing among us. The best way of understanding the scientific view of insanity is to remember the complex nature of the mind as including all the faculties which distinguish man from the lower animals which more nearly approach him. Practically, his human nature is divided into three parts—first, the intellectual; second, the moral; third, the social. We do not mean to discuss the vexed question to what extent the lower animals share with us *mind*, with all its intellectual, moral, and social aspects. What we wish to insist on is, that human beings are distinguished from all other beings by the degree to which they possess mind, and to which their intellectual, moral, and social ideas are developed. The mind is a very different thing in different individuals and in different races. That which would be considered irrational in a European would not be thought so in a Bosjesman, and, in the same way, that which might not be very remarkable in a coarse person might be a proof of insanity in a person of culture. *Sanity* is the healthy state of our *ideas* and of our *social affections*; *insanity* is that state of mind in which our ideas are false or absurd, or in which our affections are perverted or obliterated to such a degree as to alter our conduct and make it unnatural or immoral. We do not mean to say that all people who have absurd ideas or perverted or defective affections are insane, but that, speaking generally, insanity is essentially such an unsoundness either in the *intellectual* or the *affective* part of us as makes our ideas absurd or our conduct unnatural or dangerous. "Insanity is a general term," says Dr. Tanner, "used to express the mental condition opposed to sanity, sanity being that state of mind which enables a man to discharge his duties to his God, his neighbour, and himself." We can only, in this place, very roughly define insanity, and very shortly describe its principal forms. Let us, then, make a classification which includes the principal forms.

Insanity may be—1, Ideational; 2, Affective; 3, Moral; 4, Epileptic; 5, Paralytic.

This is a classification not free from objection—nor is any other classification—but it supplies the heads under which almost every case of insanity may be classed, and we shall do little more than show the applicability of these terms to the common forms of insanity.

1. *The Ideational.*—The ideas of the person are affected. There are *delusions*. The reasoning power may be intact, but the delusions supply false premises on which to reason. *Mania* and *melancholia* are the principal forms of *mania*. The mind is excited or elated, the patient thinking himself a much greater personage than he really is. The mind is intensely exercised in the insane ideas. There is often enormous muscular power, altogether disproportionate to that of the same person in health. Mania may be acute; that is to say, it may come on quickly and last for a short time and subside. Or it may be *chronic*, that is, come on gradually and extend over a long time. Mania, again, may be general, that is, it may extend to nearly all subjects, or it may only apply to one, or one class of subjects: in this case it is called *monomania*. On other subjects the monomaniac is quite sound and rational. In *melancholia* the mind is oppressed, or depressed and gloomy. Frequently there is an excited religious feeling or fear at the root of melancholia. The noticeable feature in these cases is the aberration of the intellect; the ideas are not sound and true; they are of the nature of *delusions*. It has been too common to think that there could be no insanity without actual delusions. We shall see reason to question this further on. But in this form there are *delusions*—false impressions on which the mind reasons and acts.

2. *The Affective Forms of Insanity.*—The right behaviour of the affections is just as much a part of sanity as the right behaviour of the intellect. So, when the affections are lost or perverted, or altogether unnatural, there is a degree of *insanity*. The subjects of this form of insanity are often prompted or impelled to acts of great cruelty, even murder itself, in consequence of the entire perversion of their natural feelings. They may lose the respect for their own life and be suicidal, or they may have a great tendency to injure or even kill other people, perhaps their nearest friends, to whom, in health, they are most attached. This form of mental disease is most frequently associated with the various forms of epileptic disease. Hence physicians judge very leniently crimes committed by persons who are or have been, or whose near blood relations have been *epileptic*, and readily pronounce that they may have acted under an uncontrollable impulse. Such persons may have no delusions; they may know right from wrong; they may know perfectly that the thing they are tempted to is wrong, and ask even to be confined or restrained, so as not to do it. For a long time they may resist the temptation to do it, and then yield to it as if they could no more resist the impulse than they could resist an epileptic fit.

3. *The Moral Forms of Insanity* are characterised by an utter want or perversion of the moral sense. The tendency to vice in such cases is altogether inconsistent with the education and position in society of the individual, or with the convention and civilisation of his nation. The vices in such persons are thorough, but withal there may be a slyness in the practice of them. Drinking, unchastity, lying, stealing, are practised with design. There may be no delusion at all, and a perfect knowledge that such acts are wrong, yet there may be an irresistible impulse to them. Again, the existence of epileptic fits, slight or severe, is very important. Acute fevers, blows on the head, great shocks to the nervous system, or excessive drinking may cause this state. But it will often be possible to trace epilepsy or insanity in the person or the family.

4. *The Epileptic Form of Insanity.*—We have said enough already to show that epilepsy tends greatly to impair both the mind, the affections, and the moral sense. This, indeed, is the saddest feature of this terrible disease, and the history of it in an individual who has acted peculiarly or unnaturally, or the history of it in any of his family should make us judge them leniently.

5. *The Paralytic Forms of Insanity.*—We need not dwell long upon these. When insanity or any defect of mind occurs in connection with a paralysis, everybody sees that the brain is affected, and excuses the individual from responsibility.

PAPER FLOWER MAKING.—I.

WHEN the flowers of our gardens are faded, their paper substitutes will be welcome again in our houses. The accomplished artist in paper flower making may go direct to Nature for inspiration; but flowers cannot all be copied even by taking them to pieces. Certain flowers and parts of flowers are copied exactly; others are modified to render their construction practical and simple without being less beautiful. It is only by making a number from good models that sufficient skill and acquaintance with the effects to be produced will enable a lady to go to the garden for her models, just as an artist giving instruction in drawing teaches his pupils the rudiments of his art from paper copies, and does not take them to sketch from Nature till they can fairly represent a landscape on paper, and have mastered the rules of perspective.

We do not wish to deceive our readers with the supposition that paper flower making is a cheap art. Some outlay must be made upon it; it is cheap only in comparison with the pleasing results obtained. But for the rather absurd custom of the best known vendors of materials, it need not to be so costly at the outset. It is usual to purchase the pistils and stamens of flowers ready grouped—"hearts," as they are technically called—also the calyxes and the leaves. Indeed, the petals of most flowers can be purchased ready crimped and tinted. Nor is the work of putting them together, even thus assisted, to be performed without skill. They still have to be veined or twisted, or at least tastefully posed. But the usual run of vendors will only serve these in dozens. The ordinary experimenter does not desire to possess a whole dozen of every kind of flower she attempts. There are professional flower-makers who will forward a single flower, or any given number, on very moderate terms.

We recommend ladies who desire entirely to master the art both to make their own flowers, from our instructions, which will be very ample, and occasionally to purchase the materials for making a few of various kinds, because by these they will see what a high degree of finish is given to the machine-moulded and cut flowers, and have a certain standard of excellence up to which they should work. As we said before, after due practice, let them take Nature for a model. But whilst working at first entirely from our diagrams they should look at the real flower, and mould and twist their paper into the best resemblance of it that they can. All flowers that are simply cut from paper, and goffered and crimped by ladies themselves, can be made for a moderate outlay—sixpennyworth of pink or yellow papers will make a number of roses, one sheet of scarlet paper a very great many poppies. The chief outlay needed for these will be the hearts, calyxes, and leaves. We shall give a certain number of diagrams, and also add instructions how to take patterns from Nature.

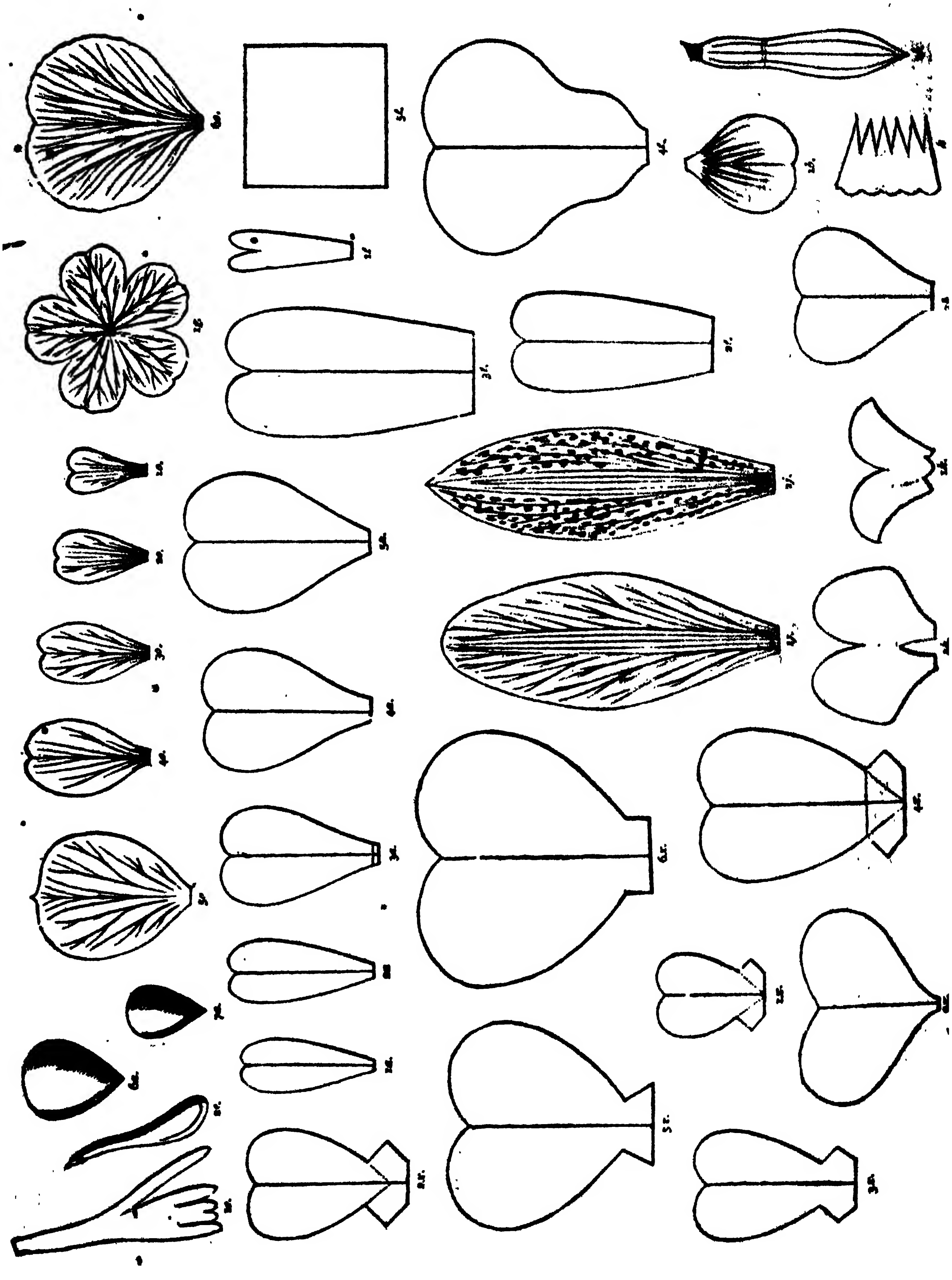
The *Poppy*, for instance, needs no diagram. Gather one, and at once, whilst it is fresh, pick off its fine petals, lay them flat between a couple of sheets of blotting-paper, place it on a tablecloth press or under a weight, such as a pile of desks or heavy books, for twenty-four hours. Then remove it, lay the petals on paper, trace the outline of one at a time with a pencil, and cut it out. Card is better than paper. One petal is sufficient. In drying the petal, the only advantage is to take choice of the best and largest. Cut the cardboard larger than the pencil outline, nearly twice the size, for the artificial flowers should be fine ones, and allowance must be made for crimping. The "hearts" sold for poppies are made of black feather, such as a duck's feather, cut off flat at the top, and tied together in a little bunch, and which closely resembles the real heart of a poppy. Cut five poppy petals of scarlet paper, lay them on the cushion and press them well with the pincers. Attach them round "the heart," and mount that on the stalk as before described. (Pages 193—195 and 264—266, vol. i., contain details of crimping and mounting stalks, &c.) Gather corn or barley, and make a bouquet with the poppies. These poppies are most quickly made, and with the corn fill vases very prettily, and last all the year round. The French tissue paper sold for flower making costs sixpence the sheet, but suffices for a number of the poppies. Common tissue is unfit for flower making; it is too opaque and limp, and will never afford a pleasing result.

Roses.—Roses differ much in size, shape, and the number of their petals. The *Monthly Rose* is the easiest of all the roses to make, and not the least pretty. The lightest shades are at the centre. Cut of No. 1 in the lightest shade, six petals; crimp and curl them towards the centre. Of No. 2 in the same shade, six petals; crimp them. Of No. 3, six petals of the same shade; goffer them. Of No. 4, six petals in second shade; goffer them. Of No. 5, twelve petals in second shade; goffer them. Put these round the heart simply, each one a little overlapping the other. Cut six, of a much darker shade, of No. 6; goffer and place them on last. All the petals for this flower are marked *o*, but only crimp the first three.

A Red Rose.—There are seven petals for this rose, all marked by an *x*. The first six are made up in as close imitation of Nature as possible (guided by previous directions), and taking the lightest colour inside. Of the seventh petal only five are cut, goffered, and placed on outside, half-turned back towards the calyx. This is also a good model for a yellow rose, which has the lightest shades in the centre. These diagrams show another way of making the part gummed to the "heart," which some prefer. The corners are folded round the stem. Cut these half as large again as diagrams.

The *Wild Rose* is a pretty object. Take for this No. 1 and No. 2 of the petals of the red rose, marked *x*, and cut them out by the dotted line, heart-shaped, or pointed. There must be a "heart" of the right kind used, which is not the same as other roses. Five leaves of either one of these petals makes a single flower, goffered and curled over at the edges. In making sprays of these roses place the smallest towards the top.

For the *Moss Rose*, cut of the square (5*t*) three pieces, and form them into balls over pieces of wadding, tying them round with cotton. Tie the three balls to a stem. All the parts of the moss rose are distinguished by *t*. Four shades of paper are used, the darkest to the centre. Cut nine of No. 1, crimp them, cement them three and three together, and place between them the three spaces of the balls. Cut twenty-four of No. 2, crimp them half-way down, cement them together four and four, place a cluster between each space of the balls, and afterwards a cluster on every ball. Curl all the edges towards the centre to make a close rich heart. Cut four of No. 3, crimp them also; make them into clusters of four, and place round the rose. Some paper flower makers only add five of these. Cut thirty-six of No. 4, goffer and curl the edges, the same side in every petal, cement them round the rose in six rows of six each. If the six are cut in a circle from the diagram, No. 4, goffered as before described, a little hole can be cut in the centre, slipped on to the flower in circles, each cemented in its place. Make the bud the same as already described, but for the moss rosebud petals use Fig. 3, cutting it a trifle larger. The petals should be half as large again as in the diagram.



A beautiful *Tea Rosebud*, half open, may be made of orange-shaded paper. It is very effective in a basket or vase. Cut twelve petals by Fig. 8, page 193, vol. i., six from the lightest and six from the darkest of the paper, gum these two and two together so as to make six petals of double paper out of the twelve, always a light and dark together. When the gum is quite dry goffer them, three quite close, with the dark leaves outside, three partially, with the dark leaves also outside. Curl over the edges of these last. Make a bud like Fig. 13, page 265, vol. i., of the palest part of the paper, and completely conceal this by enclosing it in the three smallest petals. Round these add the three less curled ones, with the petals curled back at the edges. Put on a calyx.

A *China Rose* is made from the diagrams of the monthly rose, omitting No. 1 and beginning with No. 2.

Fig. 1*g* is a *Scarlet Geranium*. It is cut in thick bright scarlet paper, and veined with the pincers. Each circle makes a flower.

The *Woodbine* is cut from thick white paper, like 1*e*, and also a shaded, and yellow-green towards the stalk end. Gum the shaded paper over the white; when dry, fold the flower over the "heart." It may even be made without stamens on the wire looped. The bud is moulded in wax, and the shape is shown by 2*e*. It is a pale green.

The large *Pink Lily* is a beautiful flower. It requires a "heart" like the white lily. Cut 1*j* and 2*j* in white cartridge paper, cover them with pink. The smaller ones, pale green on the wrong side, at the tips. They are both veined strongly, like the white lily. The smaller petals are covered with irregular dots, rather raised, of very dark carmine red. They may be put on first, and raised with opaque white, afterwards coloured red. They are completely curled over at the edges by the scissors. The three large petals are put on first at regular intervals. The three smaller also, much curled, between and behind the first. Fig. 2*j* is the calyx. This also makes the *Turk's Cap Lily*, a deep orange-coloured flower with spots of yet darker orange. Mount on a wooden stem. Directions for making the *White Lily* will very shortly be given.

The *Sweet Pea* is an easy flower to make, and is a distinct type of a kind. Cut 1*k* in thick white of double tissue. Make a flat loop to the stem, curved a little. Close the petals over it. Cut 2*k* of thick, pale, peach-coloured paper. 3*k* may be made of thick, dark purple paper, but it is beautiful cut out of rich plum-coloured velvet, the back gummed. 2*k* is placed over the white piece, the double part of it covered by the open part of the white. 3*k* is a little curled or goffered at the edge, and turned back, open. Cut much smaller, and all of yellow, the above directions may be used as a guide for making *Laburnum*. 4*k* is the calyx.

The *Fuchsia* must be made of thick paper, or tissue double. Cut four pieces like 6*a* of white paper. Mould very slightly with the goffer, and place them round the stamens. Two long ends of coarse cotton, stiffened with melted wax or gum, and tipped with powdered yellow ochre, whilst wet, makes a good centre. Close the four petals of the corolla round one another. In scarlet paper cut four like 7*a*. Mould them a little with a small goffer, as a fuchsia is moulded. Cement all the narrow parts and place them over the corolla. A purple centre may be used with red outer petals, or a scarlet centre and the long petals white. Size, double that of diagram.

The remainder of the diagrams will be referred to in our next number, in which also we shall give ample directions for making the passion flower, German aster, China aster, arum, Canterbury bells, jasmine, convolvulus, camelia, and narcissus, and give some suggestions as to grouping.

PIGEONS.—III.

VARIOUS BREEDS.

Various Breeds of Pigeons.—Of these the following are some of the more important:—

The *Carrier* was so called from the certainty and speed with which it returned to its home from strange and often far distant places, but it has long ceased to be used as a bearer of despatches. From the elegance of its shape and the compactness of its plumage, the Carrier has been called the "king of pigeons." In size it is somewhat larger than the common bird. It has wattles of naked white flesh (similar in nature to the comb of the cock), extending from the lower part of the head to the middle of the upper chap, and usually two small protuberances of a similar kind arising from the lower chap; the eye is also surrounded by a circle of the like nature, generally as large as a shilling, but the greater the breadth of this, the more valuable will be the bird. To be prized by the fancier, it should have the following points:—The head should be flat, straight, and long. The wattle round the eye broad, circular, and uniform—this constitutes a "rose-eye;" the reverse, which marks a defective bird, is a "pinch-eye." The wattle upon the beak should be short and broad, and protrude forward. The beak should be long, straight, and thick; an inch and a half is considered a fair length. The neck should be long and thin. Carriers are in plumage sometimes white, blue, pied, and splashed, but more commonly dun or black, which are considered good colours; but blues are scarce, and on that account valued.

The *Homing Pigeon* is the real modern Carrier of messages, and is quite a different bird from the old Carrier, which has long lost any carrying powers. The Homing Pigeon has been perfected in Belgium, where it has been gradually evolved from a mixture, chiefly of the Dragoon, Owl, and Tumbler varieties, the birds being selected purely for their performance. Good Homing Pigeons will carry messages for 600 or 700 miles, and races of that distance occur on the Continent every year, some trains conveying thousands of birds to the station where they are to be liberated. There are also many races in England.

The *Tumbler* takes its name from a trick it has of throwing somersaults backwards when on the wing; it is a strong and lofty flier. Its body is small and short, the breast full, and the neck thin; the beak should be thin, the head round and short, and the eye clear pearl. The Tumbler may be of various colours—black, white, silver, dun, blue, red, or yellow.

There are several varieties of fancy birds derived from the common Tumbler. One of the most prized of these is the *Almond Tumbler*, whose colour should be that of an almond shell, the brighter the better, with black and white on the ends of the quill-feathers. It should have a short neck, and broad and prominent chest. The legs should be short, and well in the centre of the body, and the wings should droop to the ground. The head should be perfectly circular, and the eye in its centre, and not near the top, as in the Carrier. The Almond Tumbler only reaches its full beauty of feather when it has moulted several times, and loses it in the decline of life, when the plumage becomes mottled. The *Ermine Tumbler*, another variety of the same breed, is so called from its black and white plumage. The *Bald-pated Tumbler* has a clear white head, and flight and tail-feathers of the same colour; the remaining plumage is various. This bird is a good flier. *Black* or *Blue-bearded Tumblers* have their general plumage of those colours, varied by a long dash of white stretching down the throat from under the jaws. Tumblers are valued for their powers of flight. Fanciers keep a bird trained to high flying, to teach the younger

ones. That they may not lose their power by imitating bad examples, they should be kept apart from other pigeons, and flown once a day.

The *Horseman* much resembled the Carrier in shape, but was smaller, had a shorter neck, and less wattle round the beak and eye. It has long ceased to be known, and was, in fact, a cross-bred Carrier, employed when the true breed was getting scarce. So also was

The *Dragoon*, which derives its origin from a cross between the Tumbler and the Horseman. To be considered handsome, it should have the beak and top of the head so straight as almost to form a line. For short flights the Dragoon is said to be more valued than the Homing Pigeon, but it cannot compete with the latter in longer distances. The Dragoon is excellent as a nurse and breeder.

The *Leghorn Runt* is a large variety; its plumage is close and compact; it carries its tail up; it has a short back and broad chest. The beak is short, and has a small wattle over the nostrils; the upper chap projects, and round the eye is a circle of loose skin. The plumage is either red, white, black, mottled, or grizzled. There are many varieties of Runts, as the Spanish, Friesland, Frill-back, Lace, Finikin, Turner, &c., but the Leghorn is most valued. Runts generally are fair breeders, but bad nurses, and it is well to place their eggs under birds which are more exemplary in this respect, as Dragoons, for instance.

The *Trumpeter* resembles the Runt in shape, and is nearly as large. It owes its name to the sound it emits in spring, or, if it be highly fed, at other seasons. The legs and feet of the Trumpeter should be covered with feathers, and a tuft of feathers should spring from the root of the beak—the larger the better. It should have a pearl eye, a large round head, and black mottled plumage.

The *Laugher* is also named from its peculiar voice, which has been described as a "prolonged broken utterance, not so sonorous as that of the Trumpeter, but more varied, sometimes resembling an Almond Tumbler stammering, and again rather the purring of the Turtle, and occasionally interrupted by one or more inspiratory 'ahs.'" The Laugher is slightly smaller than the Runt, and is generally red or grey mottled. Neither this bird nor the Trumpeter is much in vogue; in fact, the breed of Laughers was some years since allowed to die out, but has since been re-introduced from Mecca.

The *English Pouter* is said to be derived from a cross between the Horseman and Cropper. From the tip of the beak to the end of the tail it should measure at least eighteen inches. The crop should be large and circular. Birds pied with black, blue, red, or yellow are most valued, and especially the last. The Pouter ought to stand erect, and not to touch the ground with its tail, and to be able to distend its crop with wind easily.

The *Fantail* or *Broad-tailed Shaker*. The distinctive characteristic of this most elegant bird is described by its name. The neck should be long and tapering, the breast prominent, and the tail should contain from twenty-four to thirty-six feathers, and not more, or its weight will be too great to permit of its being carried erect, which is essential. The usual and best colour is a pure white. A half-bred Fantail is known as a "Narrow-tailed Shaker."

The *Archangel* is a scarce and valuable bird; the head and fore part of body are copper-coloured, and the remainder dark blue; on the head is a small crest of feathers.

The *Jacobin* (formerly known as the *Capuchin*, *Jack*, or *Ruff*) has a frill of inverted feathers running up the neck to the back of the head, and presenting a fanciful resemblance to a monk's hood. In a good bird the ruff is close and compact, and the feathers of the lower part (called the "chain") should be so long as to lap over in front.

The *Turbit* has the breast-feathers reversed and standing out in such a manner as to form a frill. A good Turbit should have a full frill, a small round head, and a short beak. Its general shape is much like that of the Jacobite. The colours are various.

The *Owl* has a close resemblance to the Turbit. It should have a round head, a short hooked beak, and a rose-shaped frill. Blue and silver are considered the best colours. The Owl is of a shy wild nature, and a secluded place should be provided for its nest.

The *Nun* has its head almost covered with a veil of white feathers, and for this to be large constitutes beauty; like the Owl, it is small in size. The plumage is chiefly white, with red, yellow, or black on the head, wings, and tail.

The *Barb*, another small pigeon, was first derived from Barbary. It has a small wattle, and a circle of thick skin of a pink colour round the eyes, which becomes larger till the bird approaches its fourth year. The best colour is black.

The *Mahomet* has a short thick beak, and a small black wattle, together with a small black circle round the eye; the flight-feathers should be black, the remaining feathers black below and cream-coloured above.

The *Spot*, in size and form is much like the common dove-house pigeon, which it also resembles in being hardy and able to forage for itself. The plumage is white, with the exception of the tail and an oval spot (whence the name) on the front of the head above the beak. Tail and spot are of the same colour, which may be red, blue, black, or yellow.

The *Magpie*, a little-esteemed pigeon, is so called from having an arrangement of white and coloured feathers something like the bird of that name—the colour may be either black or red. Though not now a Tumbler, it is said to be descended from the formerly famous German Magpie Tumblers.

The *Helmet* has a white body and coloured tail, and also a cap or helmet of colour on the head above the eyes. This, also, is a bird rarely bred at the present day.

ODDS AND ENDS.

To preserve Flowers.—Take a jar sufficiently large to contain the flower to be preserved, and in the bottom place a lump of clay or some similar substance, in which the flower must be stuck upright. Then pour in carefully fine dry sand till the flower is completely embedded in it. This must be done very slowly and cautiously, so as not to disturb the leaves of the flower. Dried in this manner, flowers preserve their form and much of their colour for many months, and are interesting and pretty for the winter decoration of rooms. This method is chiefly in use in Spain.

Decoration of Fans.—In addition to the methods described in our article upon this subject, the following may be practised. On fans of common white wood, such as are to be bought for a few pence, crests and monograms, cut from note-paper, may be tastefully arranged and gummed, and afterwards varnished over: we have seen some adorned in this manner, of which the effect was exceedingly good. Or such fans may be more elaborately decorated by the "décalcomanie" process, elsewhere described in these pages. To fans with mounts of white paper a beautiful iridescent appearance may be imparted by floating a few drops of varnish on a vessel filled with water, inserting the fan beneath the surface, and gradually raising it in such a manner as to cover the paper with the thin film of varnish which will have spread over the top of the water, and then drying it.

Cramp in the Leg.—An effectual method of preventing cramp in the calves of the legs, which is so exceedingly

painful, is to stretch out the *heel* of the leg as far as possible, at the same time drawing up the toes towards the body. This will frequently stop a fit of the cramp after it has commenced, and any one will, after a little practice, be able generally to prevent the fit coming on, though its approach be between sleeping and waking. Persons subject to this complaint should have a board fixed at the bottom of the bed, against which the foot should be pressed when the pain commences.

To remove Grease and Ink Spots.—Grease, ink, or fruit stains, on cloth, silk, muslin, or any material, may be removed without any injury to the colour of the fabric by an application of spirits of ammonia and hartshorn.

Gum Starch.—Make a pint of starch in the usual way, and add the following:—Pour a pint of boiling water on two ounces of gum arabic, and, having covered the jug, let it remain all night. The next day strain the gum water into a bottle, and keep it for use. A tablespoonful of this stirred into a pint of starch will give an appearance of newness to materials—whether white, black, or printed—when nothing else can restore it; after previously washing. It is also useful, when much diluted, for thin white muslin or net.

To clean Marble.—One part, finely-powdered chalk; one part, pumice-stone, and two parts, common soda, powdered. Sift all through a fine sieve, and mix with water; rub it over the marble and the stains will be removed; then wash with soap and water.

To clean off Dust and Fly Specks, and revive the Gilding on Picture-frames, Mouldings, &c.—Take a small piece of very soft rag, and having dipped it in a mucilage prepared by dissolving clear gum arabic in water, carefully remove all dirt and fly specks from the gilding. It is necessary to be very careful not to rub too hard, otherwise portions of the gold will be removed. When the gilding is perfectly clean and quite dry, carefully varnish over the surface with the same mucilage by means of a camel-hair pencil of suitable size.

POINT LACE WORK.—XIII.

Design for a Sofa Cushion.—The design for a sofa cushion in point lace work is given in our present number, and will be found very effective and convenient to work. It is done in separate squares, with rather fine point lace braid, but not quite so narrow a one as that which has been previously recommended for the pocket-handkerchief, cap, &c.; like these, however, it should have an open edge. The bars may be plain or dotted, and when the pattern is completed, a fine point lace cord may be tacked round the edge of the design, the open portions of the latter being filled up with as great a variety of open stitches as possible. A piece of braid forms the outside of the square, and should be worked with the pearl edge.

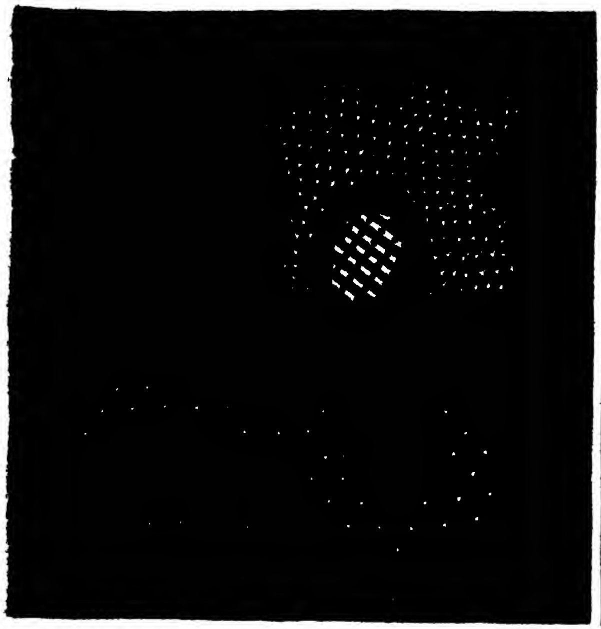


Fig. 1.

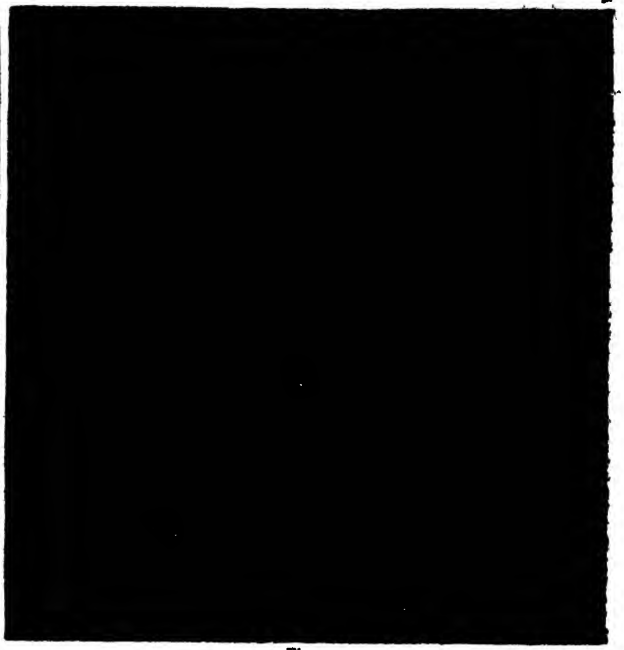


Fig. 2.

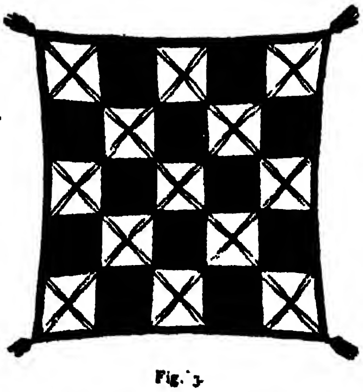


Fig. 3.

To make up the sofa cushion, a pillow of ticking, eighteen inches square, and stuffed with feathers, must be made, and covered with crimson furniture velvet. This being completed, the squares of lace, stitched together in diagonal rows, must be tacked on it, and so as to alternate the squares or lace and the plain velvet, as shown in Fig. 3. We have given two designs for the squares, Figs. 1 and 2, so that either a row of each may be placed alternately, or the designs be alternate in each row. A thick crimson cord should be sewn round the edge of the cushion, and handsome tassels be placed at the corners.

There is another mode of making up this cushion; viz.: to work a border from the design given (Fig. 4), which, when done, must be tacked on the velvet, and form, as it were, a frame, in the centre of which may be placed five lace squares, in the manner above described, but leaving the width of one square of plain velvet between the border and the squares, all round them. The lace can be easily removed for cleaning.

A very useful fancy stitch, and one that may be introduced with great effect into all lace work, is that called by some the linen-stitch; by others, Turkish point. It is done

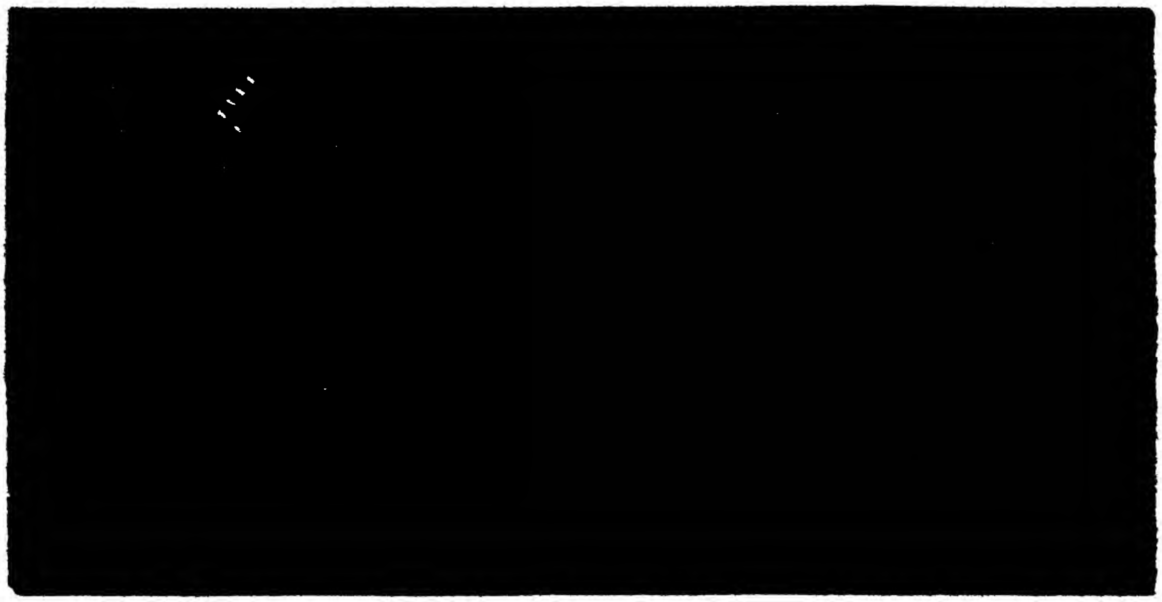
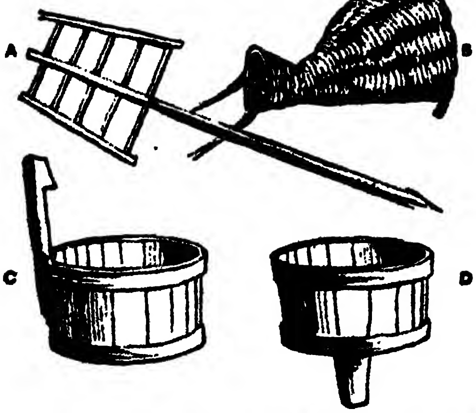


Fig. 4.

as follows:—Work a row of plain overcast into the braid rather loosely from left to right; then stretch back the thread and work another row of overcast, taking in the stretched thread, and working a stitch between each of those in the preceding row: then stretch back the thread again, and proceed in the same manner, overcasting and taking the thread back alternately until the opening is filled up. This being an opaque stitch, so to speak, comes in well amongst the more open ones, and may be used for all designs successfully; indeed, we have seen some having the open parts entirely filled up with it—but we certainly think this a little heavy, and should rather recommend a partial use of it only.

BEER, AND HOW TO BREW IT.—II.

We presume that we shall best meet the wishes of the readers of the Household Guide, if, in our directions



R; B, TAP-WAD; C, LADE-GAWN; D, TUN-PAIL.

for brewing, we give at full length the process of making such a quantity of beer, and of such strength as is best suited to the requirements of the majority of middle-class families. It appears to us that fifty-four gallons will be generally the most desirable brewing, of the quality usually sold by brewers at one shilling or one shilling and twopence—that is, with three bushels of malt and three pounds of hops. We give this as the most useful standard; of course, to a larger or smaller quantity or to a greater or lesser strength, precisely the same treatment will be applicable, the extent and costliness of the plant and materials being proportionately varied.

Whether it be better that the whole of the beer brewed

CASK WITH BARM-SPOUT.

should be of one strength, or that part should be made stronger than the remainder, is a matter for individual judgment. We believe that in most families the former course will be found really more economical. As, however, some persons may prefer the opposite, we have shown how eighteen gallons may be made as strong ale, and the remaining thirty-six as small beer; the whole can be mixed together, if desired, before putting it into the barrels.

Plant.—The "plant" (as the utensils for brewing are technically called) required for fifty-four gallons, will consist of a copper which will hold twenty-two gallons. For brewing *alone*, a larger size might, in some respects, be more convenient; but we give this as one which will

answer that end sufficiently well, and also be found useful for other household purposes. The cost of such a copper will be, with setting, about £4. A third of this sum will buy a boiler of tinned iron, which will, in most respects, be equally good, but will take longer to boil, and more fuel. A forty-gallon mash-tub and an underback (a smaller tub to receive the worts), £1; fermenting-tun (thirty-six gallons) and two coolers (shallow tubs) £1 5s.; sieve for straining hops, sieve-rest, mash-rower, tun-pail, lade-gawn, spigot, tap-wad, and two yeast-spouts, £1 5s.; five eighteen-gallon casks, £4 5s.; total, £11 15s. The prices here given are, of course, merely approximate. They will vary in different districts. Serviceable articles may frequently be bought at auction sales for much less than the prices quoted. Brewing plant suffers little from wear and tear, and will, if well cared for, last a lifetime. Between times of use, the tubs should be stored away in a cool place, where they will not be exposed to draughts, which would cause the wood to shrink. Before being used they should be soaked for a day or two to prevent leakage, scalded with boiling water, and turned bottom upwards, that they may become perfectly dry. The barrels must also be well washed out; a handful of gravel or lime will assist in cleaning them; they also must be scalded and turned down on the bungholes, that every drop of water may run off. If they have become tainted—that is, have acquired a bad taste through partial decomposition of the wood, they must be filled with water and quick-lime, or with hot water and walnut-leaves, and allowed to stand several days; or the heads must be taken out, and straw burnt in them. Some persons, to insure thorough cleaning, insist that the heads should always be taken out of barrels before filling. New casks should be soaked in a hot brine of salt and water. The illustrations on the preceding page represent some of the utensils used in brewing.

The mash-tub should be placed on a bench or trestle high enough to bring its bottom on a level with the top of the underback. The wicker basket, called the tap-wad, must be fixed within, its opening brought against the spigot-hole, and the strings drawn through and secured by driving in the spigot. The copper should be filled with water over night, and the fire lighted and banked up. The brewer should rise early, and he will find the water far advanced towards boiling. When it boils, half must be ladled into the mash-tub and half into the underback, and the copper re-filled. Wait till the water has cooled to 160°, which will occupy from twenty to twenty-five minutes. As a thermometer cannot always be used in family brewings, an old woman's "rule of thumb" may be adopted, and the water considered cool enough when the steam can so far be blown aside as to allow the brewer to see his face in the water. The malt (three bushels) must then be poured into the mash-tub, the water from the underback ladled on to it, and the mash thoroughly stirred with the mash-rower in such a manner that the whole of the malt may be completely wetted; then cover it up closely with malt sacks. When the copper again boils, sixteen gallons of the water must be ladled into the underback and left to cool as before, and then poured into the mash. This time the water may be two or three degrees hotter than before. The mash must be again well stirred and covered up. When the copper boils a third time, the water must be ladled into the fermenting-tun, and a fourth twenty gallons boiled. After the mash has stood three hours, the spigot may be withdrawn, and the liquor, now known as wort or sweet-wort, allowed to flow. The first pailful or two will be thick, and must be poured gently back on the mash; twenty gallons will run off, and as the copper will by this have boiled a fourth time, and the water will again have been ladled out into the fermenting-tun, the copper will be empty, and must be filled with the wort. With thirty-six gallons of water a second mash must be made, and this may be used at a still higher temperature, as high as 174°. This mash must be stirred and covered up like the former one. Two pounds of hops must be broken up and thrown into the copper, which must be made to boil; the boiling should be continued for an hour, and rapidly, or the beer will not be clear. When the wort approaches the boiling point, and afterwards till the hops are boiled down, it must be constantly stirred with the mash-rower. At the end of the hour, the twenty gallons will have been reduced, by evaporation, to eighteen, the quantity required. The fire must then be damped, and the wort ladled into the hop-strainer, and afterwards into the coolers.

In large breweries the cooling is now usually accomplished by pouring the hot wort into shallow vats, through which cold water is conducted in metal pipes. In family brewing, it must be done by pouring small quantities of the wort into shallow tubs, and placing them in the open air. Care must be taken that no rain falls into the wort, or the beer will not keep. The cooling must be done quickly, or a change, known as "foxing," will take place, and give a disagreeable flavour to the beer. The nature of this change we shall explain by-and-by, when we deal with the theory of brewing. The second mash should stand two hours; twenty gallons should then be run off and boiled an hour, as before, with the spent hops and half a pound of fresh ones. The remaining wort may be next drawn off, and a pailful of boiling water thrown on to wash the grains. Another twenty gallons of wort will now be obtained; this will also have to be boiled its hour with the spent hops and the remaining half pound of fresh ones. Some persons boil small beer two hours; it must be strained and cooled in the same manner as the ale. When the whole of the wort has been drawn off the mash, the grains should be removed and the tub washed out with boiling water; it will be required for fermenting, and the underback can now be made use of as a cooler.

We now come to that part of the process which requires the greatest care—the fermentation. Before being fermented, the wort must in summer be allowed to cool as low as the weather will permit, unless it should be under 60°; and in winter to the warmth of new milk; it must then be poured into the fermenting-tun, and the yeast mixed in. For fifty-four gallons of wort, one pint of fresh yeast is sufficient; if not quite fresh, rather more; stale yeast should not be used. Some persons insist that the yeast should be from beer of the same quality as that to be fermented. The fermentation must be watched; as it proceeds, the temperature of the beer will rise; it may perhaps rise too high, and the fermentation become too rapid. If so, it must be checked. The temperature of the wort should not in warm weather be higher than that of the atmosphere, indeed, never more than 72°; it may be lowered by ladling from one vessel to another. In cold weather the wort is liable to take a chill, and fermentation must then be encouraged by covering up the tun.

On the following morning the yeast should be skimmed off (it will have formed a kind of cauliflower-head over the tuns), and the beer poured into the barrels. Here the fermentation will continue, and yeast-spouts must be used to carry off the yeast as it works from the bungholes. As soon as the fermentation ceases, put the bungs lightly in, and tighten them three or four days afterwards. The quantity of water we have directed to be used will have given eighteen gallons of ale and thirty-six gallons of small beer, if the runnings have been kept separate; and in that case the ale will be fit to drink in from four to six months, and the small beer in three weeks or a month. If the whole has been mixed together, it will be ready in less than three months.

WILD PLANTS SOMETIMES USED AS FOOD.—II.

THE following wild plants are sometimes made available as salads :—

The *Salad Burnet* (*Poterium sanguisorba*) is most common on dry chalky soils : it throws up a stem fifteen inches high, with flowers of a greenish yellow, tinged with purple, in July. The leaves have somewhat the taste and smell of the cucumber. It was formerly sometimes sown with clover as a herbage plant.

The *Lady's Smock* (*Cardamine pratensis*) is well known in moist meadows by its faint pinky white flowers, produced in May. The leaves form an agreeable salad, and resemble American cress.

Stone Crop, or *Orpine* (*Sedum telephium*), belongs to a family of succulents which grow on bare rocks. The leaves are eaten in salads like purslane, and are not considered inferior to it by the French. By some it is pickled in the same manner as samphire.

Samphire (*Crithmum maritimum*) grows on rocky cliffs by the sea-shore, or on dry stone walls, the leaves are fleshy, and the flower-stems about eighteen inches high. It bears a yellow blossom in August, and it was formerly highly prized for salads and pickles, and is still used.

Sea Bindweed (*Convolvulus soldanella*) abounds on sea-shores. The tender stalks are used chiefly for pickles. Like watercress, it is considered wholesome for those who suffer from chest diseases.

Sweet Cicely (*Scandix odorata*).—The leaves of this plant were formerly used in the same manner as chervil, the green seeds were also ground and mixed with lettuce or other cold salads, to which they imparted a warm agreeable taste.

The *Buckshorn Plantain*, or *Star of the Earth* (*Plantago coronopus*), grows in sandy soils, and is common on the sea-shore. It is a low spreading plant, producing, from May to August, short spikes of starry flowers. The growth is singular, the recumbent stems pressing closely on the ground. It has a somewhat rank and disagreeable smell, but was formerly cultivated as common cress.

The *Ox-eye Daisy* (*Chrysanthemum leucanthemum*) is common in dry pastures. The leaves spring immediately from the root, the flower-stem rises from two to three feet high, and blossoms in June and July with yellow discs and white rays. The young leaves were formerly in much repute among the Italians as salads.

The *Common Sorrel* (*Rumex acetosa*) is a well-known weed in pastures, and has long been cultivated (see page 31 of this volume). In Ireland it is much eaten with fish.

The *Wild Garlic*, or *Crow Onion* (*Allium vineale*), is frequently found in stiff arable land, and resembles the common onion in miniature. The young tops are eaten as salad by the peasantry in some districts, and the roots are used in hot pickles.

The following wild plants may be applied to a number of miscellaneous domestic purposes.

The *Butterwort* (*Pinguicula vulgaris*), which grows in boggy places, has somewhat the same action as rennet. In Lapland and the north of Sweden it is usual to pour milk, new from the cow, on the leaves of this plant, which impart to it the consistency of cream ; it is then strained and laid aside two or three days till it acquires a certain acidity. New leaves are not needed when a fresh supply of thickened milk is required, for a spoonful of the old is sufficient to coagulate it, and the process may then be repeated any number of times.

The young shoots of *Common Heath* (*Erica vulgaris*) may be used as a substitute for malt in brewing. The inhabitants of Isla and Jura make a pleasant drink by using two-thirds of this material to one-third of malt.

Cow Parsnip (*Heracleum sphondylium*).—The footstalks of the radical leaves of this plant are gathered by the inhabitants of Kamtschatka in the beginning of July, and the acrid rind removed ; they are then dried in the sun, and laid up in the shade in bags. In this state they are covered with a yellow saccharine effervescence, which tastes like liquorice, and is greatly relished. The Russians distill an ardent spirit from their stalks. In Poland and Lithuania a kind of ale is brewed from the seeds and leaves.

The *Speedwell* (*Veronica spicata*), and the *Spring-grass* (*Anthoxanthum odoratum*), are considered to make good substitutes for tea ; and *Betony* (*Betonica officinalis*), which has a slightly intoxicating quality when fresh, is said by some to possess all the merits and none of the defects of the Chinese leaf.

HOUSEHOLD AMUSEMENTS.—XXV.

BAGATELLE (*continued from p. 141*).

To understand how to play the game scientifically, the player must, as with all scientific studies, learn the technical terms that are used in the science.

1. The ball played upon is the "object-ball."

2. A stroke by which the player strikes his own ball from any part of the table on to another ball, whence it bounds at an angle on to a third ball, striking the two balls, is a "cannon" (Fig. 1).

3. When the player fails to strike the object-ball with his own ball, it is a "miss."

4. When the player's ball runs into a cup, or is forced off the table without having first struck another ball, that stroke is a "coup."

5. If the player strikes his own ball or the object-ball so as to make it rebound, after contact, into a cup, it is a "double ;" and it is a "double double" if a ball strikes the side of the board, called the "cushion," bounds from one side to the other, and then rebounds into a cup. This stroke, like the ordinary double, may be made either with the player's ball struck against the object-ball, or with the object-ball after concussion with the player's ball.

6. A "side stroke" is made by the player striking his own ball more or less on either side, according to the direction he desires it to take.

7. When the ball is struck by the cue below the centre of the ball, it is a "low stroke."

8. When the ball is struck above the centre of the ball it is a "high stroke."

9. A "following stroke" is made by giving the ball a quick push, which causes the player's ball to follow in the immediate direction taken by the object-ball.

10. A "full stroke" is made by the player striking his own ball on to the centre of the object-ball.

11. When a stroke is made contrary to the rules of the game, it is called a "foul stroke," and this may be done by the player touching his own or any other ball with his hand or cue during the time it is rolling ; or when the player fails to strike his own ball fairly from its position to a distance of more than two inches ; or when a player touches his opponent's ball with hand or cue ; or when he in any wilful way arrests the roll of either ball ; or when he wilfully knocks the ball off the table.

12. The "player's" or "striker's ball" is the ball played with, or belonging, for the time being, to the player. Every stroke is a "hazard," and strokes are distinguished as hazards and cannons (see paragraph 2). It is a "losing hazard" when the player's own ball is forced into one of the nine cups after contact with any other ball ; and a "winning hazard" when the ball played upon is forced into a cup after contact.

13. A "twist" or "screw" is made by striking the ball low with a sudden pull back of the hand, which causes the player's ball either to stop or return to the point whence it was struck after concussion with the object-ball.

The cue, in this game, is held lightly between the finger and thumb, and the ball simply struck in the centre, hap-hazard, into a cup; but players of the game of billiards when playing bagatelle, naturally introduce the strokes used at billiards, and, for certain strokes, hold the cue as a billiard player would hold it; and these players have a great advantage over those who only play bagatelle by pushing about the balls.

Ladies are not unfrequently billiard players, and they may learn to be good, scientific bagatelle players; and by

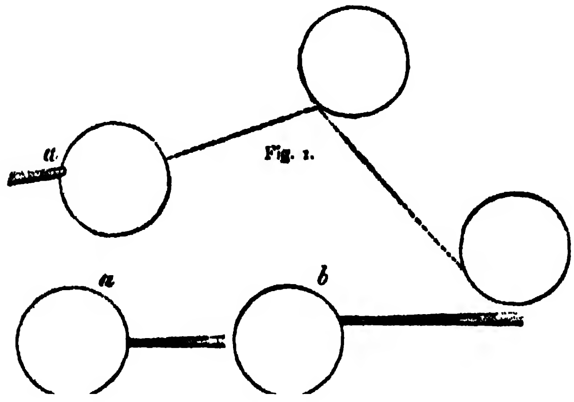


Fig. 2.

following these hints and directions, in a short time join the most experienced players.

To play well, the cue must not be simply held lightly between finger and thumb, but in a position that will allow the strokes to be scientifically made.

The left hand must be firmly laid upon the table, about six or seven inches from the ball to be struck; the wrist and the ends of the fingers alone touching the table, the knuckles raised, the palm hollowed, and the thumb elevated, so as to form a rest or bridge for the cue.

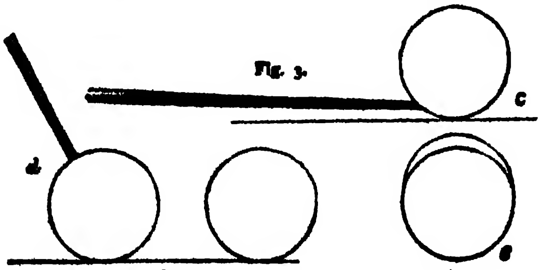


Fig. 4. Fig. 5.

The arm should be almost close to the side, but perfectly free; the cue held almost horizontal with the top of the table, and the eye fixed on the ball to be struck, as shown in our previous illustration.

After giving a rapid glance at the object-ball, and then instantaneously at your own, make your stroke fairly, fully, and by one single impulse, in the centre of the ball. To do this, point the cue to the ball, withdraw it about four or five inches, and make the stroke fairly from the shoulder, and not merely from the elbow. Accustom yourself to take the sight of the ball, and make the stroke without lingering, but avoid striking the ball too hard. Many of the strokes depend as much on strength as direction, and the ball should be *struck*, not pushed, excepting for the following ball stroke, or when the ball is close to the side of the board; it is then necessary to give it a slightly pushing motion.

If you strike the ball too hard, you break through the regular angles of the table; if you play too you fail in sending the ball where you intended. For the following stroke, the cue must be pointed high, and the ball struck considerably above its centre with a flowing motion of the arm, so as to produce a sort of pushing forward blow. The higher you strike it the more swiftly it will travel; the lower you strike it the more slowly will it progress.

In Fig. 2, *a* shows the position of the cue for the central

Fig. 6.

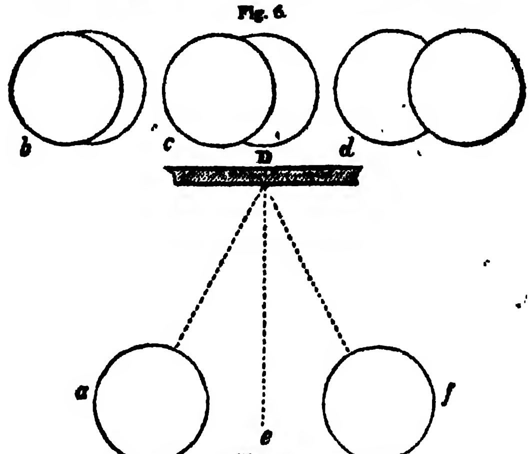


Fig. 7.

stroke; *b*, position of the cue for a following stroke; *c*, Fig. 3, position of the cue for a twist; *d*, Fig. 4, position of the cue for a twist when one ball is near another.

Dividing the Balls (Figs. 5 and 6).—It has been mentioned before, that according as you strike the object-ball full in its centre, or more or less on one or other of its sides horizontally, so is its direction, and that of your own ball determined. This is called *dividing the balls*. By a *full ball* or *stroke*, is meant one in which the point of impact * between each ball is full, complete, and perfectly in the

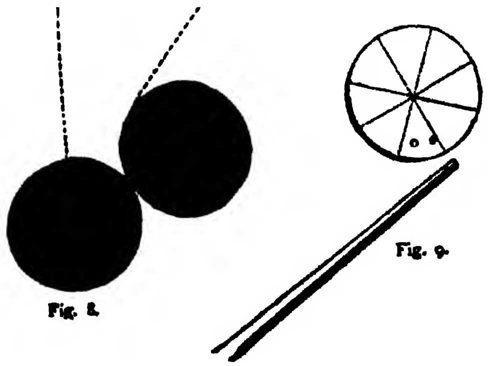


Fig. 8. Fig. 9.

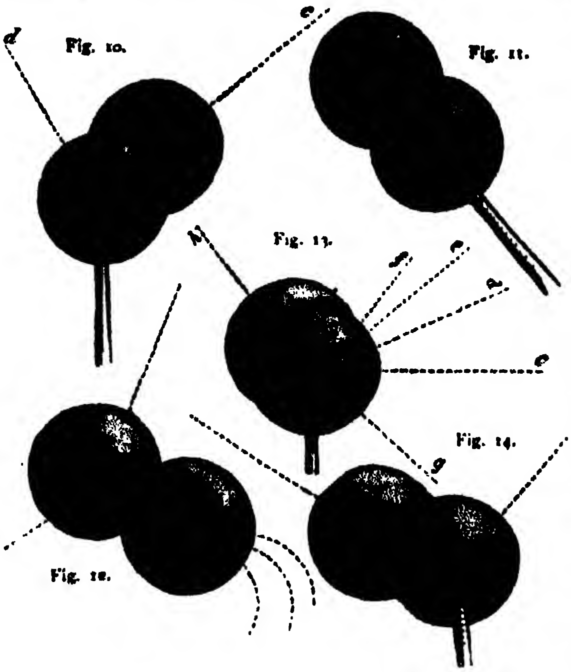
centre of both, *e*, Fig. 5. By a *three-quarter ball* is meant one in which the striker's ball covers about three parts of the object-ball at the moment of contact, *b*, Fig. 6; a *half ball*, is one on which about half of the circumference of the object-ball is covered by the opposing half of the other, *c*. In a stroke of this kind, each ball pursues a corresponding direction in opposite angles. A *quarter-ball* is one in which the points of impact are still more narrowly defined, *d*; and an *eighth*, or *fine ball*, is a stroke in which the balls merely touch and glance away.

Angles of the Bagatelle Board.—The direction of the motion produced in a movable elastic body, projected against a body that is fixed and at rest, is simple and

* *Point of impact* is the point of one ball touched by the other.

determinate, and is alike under all the varieties of velocity and modes of projection. The reaction will invariably equal the action, and be the counterpart thereof; or, in other words, the course of the body, after contact, will be the counterpart of the motion originally imparted to it; hence the angle of reflection must uniformly be equal to the angle of incidence, Fig. 7. Thus the ball, *a*, propelled against the cushion (the side of the board), at D, forming with the line *e*—drawn through the point of contact—the angle *a e* D, will be returned in the direction D *f*, forming the corresponding angle D *e f*. In making angles it must always be remembered that the least deviation from the stroke in the centre of the ball will produce a corresponding deviation in the angle; and the strength with which the ball is struck will have a tendency to vary the return angle. The best way to acquire a thorough knowledge of the angles of the board is to begin with a single ball, and strike it from point to point, marking the direction taken at its departure from the cue's point, and its reflection after striking the cushion. Without a good knowledge of the angles, the game cannot be played with certainty; it may be amusing without scientific exactness on the part of the players, but if a stroke or a series of strokes can be made with mathematical accuracy the interest of the game is greatly increased.

The Object-ball Divided Angles.—1. The full ball, Fig. 11:—If the player's ball be struck accurately in its centre on to the centre of the object-ball, they both proceed in the same direction. 2. The half ball, Fig. 10:—In this stroke the angles are equal to each other, and both balls travel at about the same speed. If the object-ball is struck by the player's ball, and the stroke covers half the ball, the object-ball will be driven to *c*, and the player's ball to *d*. 3. The three-quarter ball, Fig. 13:—The striker's ball covers about three parts of the object-ball, and the former takes the direction of one of the dotted lines, to *c*, *d*, *e*, *f*, or *g*, and the object-ball proceeds to *h*. Just according to the strength at which the striker's ball is struck does it take the direction indicated. If it be struck very hard, it flies to *c*; if the stroke be of more moderate strength, it is deflected from its original course to *d*; if still more gently, it takes the line of *e*; and more gently still, that of *f*; but if struck below its centre, it returns at the angle *g*; the object-ball in each case proceeds in the direction of the line *h*. 4. The quarter ball, Fig. 14:—The quarter ball causes the angle taken by the object-ball to be more acute, while that assumed by the striker's ball is less so than in the last case, but the angle is wider than before. 5. The eighth, or fine ball, Fig. 12:—In this stroke the reverse to that observed in the three-quarter ball takes place; and instead of the striker's ball being deflected at an acute angle, it is the object-ball which takes the direction shown by the dotted lines. This stroke is called the cut, and is very useful. 6. The very fine ball, Fig. 8:—The player usually strikes his ball very gently, so as to reduce the angle as much as possible.



An examination of the diagrams will show the learner the advantages of striking the object-ball on its side; the same relative effects are produced whether you strike one or other side of the ball. If you strike on the right side of the object-ball, your own ball takes the right hand angle; if on the left, the left angle. In dividing the object-ball, the player is supposed to strike his own ball in the centre, or nearly so; but as the object-ball is always at a greater distance from the player than his own ball, very much depends on the accuracy with which he draws an imaginary line through the former, so as to cover it just sufficiently with the latter. Considerable uncertainty must therefore arise as to the exact division of the object-ball; and it has been found that the better plan is to divide the player's own ball, which is just under his eye. This division of the player's ball is a modern introduction, known by the name of side stroke; and by its use all the effects belonging to the division of the object-ball may be obtained with greater certainty.

The Side Stroke.—This stroke is made by striking the ball with the cue on the side on which it is intended to go after contact with the object-ball. This is imperative. The side stroke does not take the proper effect till the ball comes into concussion with another ball or the cushion. When the ball is struck, on either the right or the left side, the scientific effect of the stroke is to remove the axis or travelling centre of the ball a little to the right or left; or, in fact, to lower the centre of gravity, and to slightly impede its progress. As the ball leaves the cue, it travels on this false axis till it comes into contact with another object. When that contact takes place, the natural roll of the ball is resumed, and it flies off from the point of impact by a sharper or more acute angle than it would have done had it been struck full in the centre, and the object-ball had been divided. The side stroke must not be made by a very hard or heavy blow; the more gentle the stroke, consistent with the object intended and the distance to be travelled, the greater the certainty of execution, and it will be observed that the ball progresses more rapidly at the desired angle after impact with the object than before. This arises from the greater freedom with which the ball travels on its natural centre. In making the side stroke, the hand must be slightly inclined to the contrary angle that the ball is wished to assume after impact, and the motion of the hand must be accompanied in making the stroke with a slight and almost imperceptible, but instantaneous, turn of the wrist, Fig. 9. The side stroke and the division of the object-ball accomplish precisely the same result—namely, to produce the necessary angles of departure for the balls after impact one with the other. As a general rule, when you wish your own ball to fly off at a particular angle, it is best to use the side stroke; but when you wish to drive the object-ball in a particular direction, then it is best to divide the ball played on. If you make the side stroke with too hard a blow, you defeat the intended object, and your ball runs off in the opposite angle. Either of these

spaces may be struck, and every point gives the ball a different direction.

When in some measure acquainted with the direction taken by the ball struck from various parts of the table, the player may begin to practise with three balls, and try cannons; and the best way to do this is to place one ball at the top of the board near the spot, *b* (Fig. 1, page 140), and another near the side; then play from *a*, and it will be easy to strike both balls if the object-ball be correctly struck. Striking two balls with one ball is a cannon.

In playing the game of bagatelle, the first and most easily acquired strokes are winning hazards, for which it is seldom necessary to use the side stroke at all, because without you put sufficient force on your own ball it is nearly impossible to reckon, with anything like certainty, on the direction taken by the object-ball, especially at long distances; but when you strike your own ball full and divide the object-ball, then you may fairly calculate upon certain results; for if the ball you play upon be properly struck, it must go into the cup aimed at.

When you have made your stroke, wait till the ball stops, and either proceed with your game, if you have scored, or allow your adversary to strike, without remark. Always endeavour to make the stroke with some object in view, and if neither cannon nor hazard present themselves, then play for safety. Do not play carelessly, and never despair of winning a game; but do not try after difficult cannons or hazards when your end may be gained by more easily-executed strokes. Avoid the too frequent use of the side stroke, anticipate the consequence of every stroke, and play accordingly. Stand well behind your ball, and make your stroke without hesitation or fear. Some players are so well versed in the handling of the cue, that they can fill every hole with the nine balls in one trial.

INCIDENTS IN CHILD-LIFE.

HOME, THE FIRST SCHOOL.

CERTAIN events are liable to occur in childhood which, although merely passing incidents, affect the mind, and influence health to an extent which demands particular consideration. All the pleasures which children enjoy, the sufferings they endure, the privations, pastimes, and pursuits which constitute the common course of events in daily life, are more or less calculated to stamp the character with an indelible brand, to incline to good or evil courses in proportion as such occurrences are more or less frequent, and rightly or wrongly interpreted. Whether with intention, or otherwise, the scenes which are enacted continually before the eyes of children, are those from which the most lasting impressions are derived. At first a mere spectator, the child speedily becomes an actor in precisely the same scenes as he has witnessed, and the example of his earliest associates is naturally the guide by which he shapes his course.

In the strictest sense of the word, the unwritten lessons thus acquired constitute practical education, and the home of a child is his first school.

Whilst there is no need, in educating the young, to point out vices and errors which do not ordinarily beset the tender age of childhood, there is an opposite plan to be avoided. Many tender-hearted and highly conscientious parents, wishing that the world were different from what it is, are apt to bring up their children in a manner which completely unfits them for the contest they must necessarily engage in. Lamenting the existence of evil, they pretend to ignore its presence; unconscious that moral courage is strengthened by use, they endeavour to remove every temptation which may possibly prove a stumbling-block from their children's path. Inexperienced, untried, uninitiated in the commonest duplicities which everywhere abound in mixed society, the children of the above well-meaning parents are most liable to err. The first few hours a boy, hitherto closely restrained at home, passes in a public school, for instance, suffices to show the discrepancy between home precepts and school practices, and he is consequently more likely than not to plunge into the follies and vices of the new sphere in a spirit of excess. By anticipating the probable temptations to which a novice in every pursuit of life must inevitably be exposed, the bitterness of actual experience may be lessened, if not totally avoided.

Children cannot be taught too early that they are responsible beings, and that in a great measure their health and happiness are in their own keeping. Any event that is capable of exciting interest in the mind of children is deserving of being made clear to their understandings. The nature of all pursuits in which they are eagerly engaged should be viewed in all their various aspects—whether producing pain or pleasure, happiness or misery. In this way only can children be fitted to live in the world with enlarged sympathies and discernment of the true nature of things, the dizzying heights of success and the despondency of failure being alike guarded against by initiatory training.

As far as it is possible of accomplishment, it is desirable that children should live in their homes as though the narrow sphere were really the outside world. In all matters relating to their rights of possession, in their dealings with one another, and in their personal bearing towards the different members of a household, they should be taught to observe rules which regulate the actions of their elders under similar circumstances.

As a general fact, being at home, surrounded by one's relatives and domestics, is apt to be regarded as a favourable opportunity of having one's own way, irrespective of the rights, tastes, and condition of others. Children are very quick to catch these impressions and to act upon them.

With regard to the moral principles to be enforced, it is unnecessary to say that all preparation for life should be essentially Christian in its nature. Success without honour should be regarded from the outset of a practical career as worthless. And here it may not be out of place to remark that in the absence of more minute rules for individual guidance, public opinion should be consulted.

Happily the present utterances of the above voice are sounder on most social and political subjects than in any preceding period of our history, and consequently, the contradiction between moral precept and actual practice is greatly lessened. At the same time, there is hardly a profession, trade, or calling in life exempt from flaws, and drawbacks to those engaged in such pursuits. In selecting a business or profession for young people, these flaws should not be ignored, but should be candidly avowed, and their real nature explained. As a short road to fortune, many dishonest practices are apt to be glossed over under the specious designation of "tricks of trade," or what not. The aim of teachers should be to describe these practices as defects which right-minded men, engaged in similar pursuits, strive to eradicate from their calling. Of course, if a boy constantly hears his parent rejoicing over a good stroke of business, effected by the aid of these tricks, his estimate of his parent's mercantile morality will necessarily be low; and on the first occasion, when high principles of honest dealing are dilated on by the same lips, the value of the lesson will be considerably diminished. In the same way a girl that observes her mother constantly neglectful of household duties, in the pursuit of vain pleasure, will be naturally inclined to consider the all-engrossing, distant sphere of action more important for a woman to figure in than home life.

Whatever may be the occasion of the lesson, the utmost care should be taken not to depress the youthful mind. Self-confidence and courage are the greatest aids to

success in every pursuit. To dishearten a child in his wildest schemes of reform or self-advancement, is to chill his sympathies; to say that anything is impossible, is to curb his energies. Rather let him try, and should failure result, give him hope that the desired end may yet be achieved, if not by his personal strength alone, by the united efforts of the many who may be of his way of thinking.

A valuable aid to enlargement of the mind in young children, consists in their being present when questions concerning popular movements, political changes, and matters affecting the welfare of society generally, are being discussed. An opportunity is thus afforded for them to learn the history of their own times, and to imbibe the spirit of thoughts peculiar to their days, which is too often denied children educated at schools far away from home.

In all that pertains to the intellectual culture of boys under the parents' roof, girls should be joint sharers. Now-a-days, more than in any previous time, it is essential that the mental training of the gentler sex should be subject to the same rules of discipline as are considered salutary for youths who have to make their way in the world. If women aspire to share the toils hitherto undertaken safely by men, they should not shrink from the studies which have made men, as a rule, more accurate reasoners, close observers, and precise workmen than women. In families composed of boys and girls, the utmost indulgence is usually displayed towards the weaknesses and shortcomings of sisters—their whims are humoured, and their caprices forgiven, to an extent which implies that the exercise of petty tyranny over brothers and male relatives is the natural prerogative of women. The concessions so liberally granted on the one side, will, however, probably be withdrawn, provided the contemplated changes in our social system are carried into effect. If the parents aim at their daughters becoming the rivals of men in arduous pursuits, whether of mind or physical labour, they should no longer observe the wide distinction which has hitherto characterised the peculiar education of girls. Much of the indulgence formerly considered due from boys to girls should, in this case, cease to be enforced, on the principle that equal rights impose equal duties.

That a more practical aim might be observed with advantage in the education of women than has generally been the rule, no one can doubt. In this view it is proposed throughout subsequent articles of the present series, to include girls and boys in the general suggestions for the household education of children. Instances which apply with particular force to the case of girls will be cited separately.

COOKERY.—LVIII.*

THE FRYING-PAN AND DAUBIÈRE.

EVERY well-appointed kitchen should have the means of frying in two different ways; the first, that commonly employed, is done in an ordinary frying-pan, of which it is needless to give a description. A *little* fat is put into the pan; when it is hot, the article to be cooked is laid in it, and when done on one side is turned to the other. It is, in fact, broiling by means of contact with hot iron, the slight quantity of grease just serving to prevent burning. Some things, which can stand rough handling, as chops and steaks, may be cooked in this way to a palatable condition; but the more delicate kinds of fish, bread-crumbed cutlets, &c., are mostly failures.

For these, there should be a *deep* frying-pan or dish, allowing the things to be *plunged* in the boiling fat. Its dimensions should be sufficient to cook a fish the size of a handsome mackerel. The deep pan by no means dispenses with the smaller and shallower frying-pan for doing small things, such as kidneys, eggs, and steaks wanted in a hurry. Its depth may be from six to eight inches, as no more fat need be put in than will fairly cover the article to be fried, and which may be laid on the wire-bottomed strainer for plunging in the fat and taking out. The handles, both of the pan and the strainer, should be tipped with wood. A small wire basket, also with a wooden-tipped handle, will be found useful for frying small tender things, as whitebait, smelts, gudgeons, parsley, and vegetables divided into small portions.

In a common shallow frying-pan, small tender objects are apt to break and become sodden with grease. By plunging them in boiling fat, their outside is set, and forms a crust; their substance becomes firm, and when taken out they are crisp and dry. This is how suburban Parisian restaurants make such relishing fries out of river fish, such as dace, roach, bleak, and gudgeon. It is necessary to have the fat hot enough, because boiling grease does not penetrate the solid articles of food that are plunged in it, but shuts itself out at once by forming a brown case all over their surface. The natural juices inside do the rest, swelling the thing fried by their partial conversion into steam. If left too long in the fat, they will first be dried up, and then scorched and burnt. That the fat is hot enough may be known by letting *one* drop of water fall upon it; if it splutters and dances, all is right. A better way is to try it with a strip or thin slice of crumb of bread. If it speedily turns of a golden brown, you may begin frying at once, remembering that things do very quickly, and cannot be left a minute. Even a three or four pound fish will speedily be done enough, and have acquired the tinge which brings the water into your mouth.

Inexperienced cooks will be frightened at the *quantity* of fat required; but it may be made to serve several times, if strained and poured into covered jars, to keep out dust, as soon as the frying is done. Of course, fat which has once fried fish will be reserved for fish alone; the same of fat for vegetables and sweet things, as fritters, pancakes, &c. Good frying fat can be obtained from the top of broths and soups when cold. To clarify it, boil and skim it, and then pour it off, leaving in the vessel any sediment or liquor there may be at the bottom. Sweet pork-lard makes excellent frying fat; butter is more expensive and, as well as oil, will be saved for meagre days by those who observe them.

From what has been said, it therefore results that to really fry well, you must, first, have plenty of fat; secondly, you must let the fat get hot enough before commencing operations; thirdly, you must wipe the surface of things to be fried quite dry before putting them in, otherwise the steam, suddenly generated by the moisture immersed in the fat, will cause it to splutter and fly about, causing perhaps unpleasant burns on your face and hands. This mode of frying especially allows you to smear the things with egg, dust them with bread-crumbs, or simply rub them with flour. They come out nicely brown and dry, neither greasy nor indigestible. Frying in this style also allows you to do many things which could not be cooked respectably in a shallow pan, as well as to freshen up yesterday's remnants—small birds, slices of underdone meat, small or sliced potatoes, young vegetable marrows, sliced turnips, lumps of cold fish when shapely and not too much broken, artichoke bottoms, and many others.

A shallow frying-pan is incomplete without a fishslice, which will also be useful in handling and taking out things from the deeper utensil.

A mode of cooking much practised abroad, near akin to frying, is called *sauter* (to toss up). It is mostly done in a small deep saucepan, in which the article—potatoes, small birds, meat, or sweetbreads cut into dice, and fleshy vegetables—are shaken and turned about in hot fat, until

done brown and enough. As in frying, the soddening of the things with grease is entirely avoided by having the fat hot enough to harden the outside of a substance into a crust. A sauté potato, whether whole or sliced, should be brown and crisp outside and mealy within. A sauté fowl or duck nearly approaches one roasted in a saucepan, only it may be accompanied by vegetables, as potatoes, onions, or sliced turnips. Kidneys, however, and other small things which become tough, leathery, and shrunken, when exposed to more than a moderate heat, are occasionally sautéd in wine. Sautéing is often done in earthen pans, which are especially adapted for omelettes.

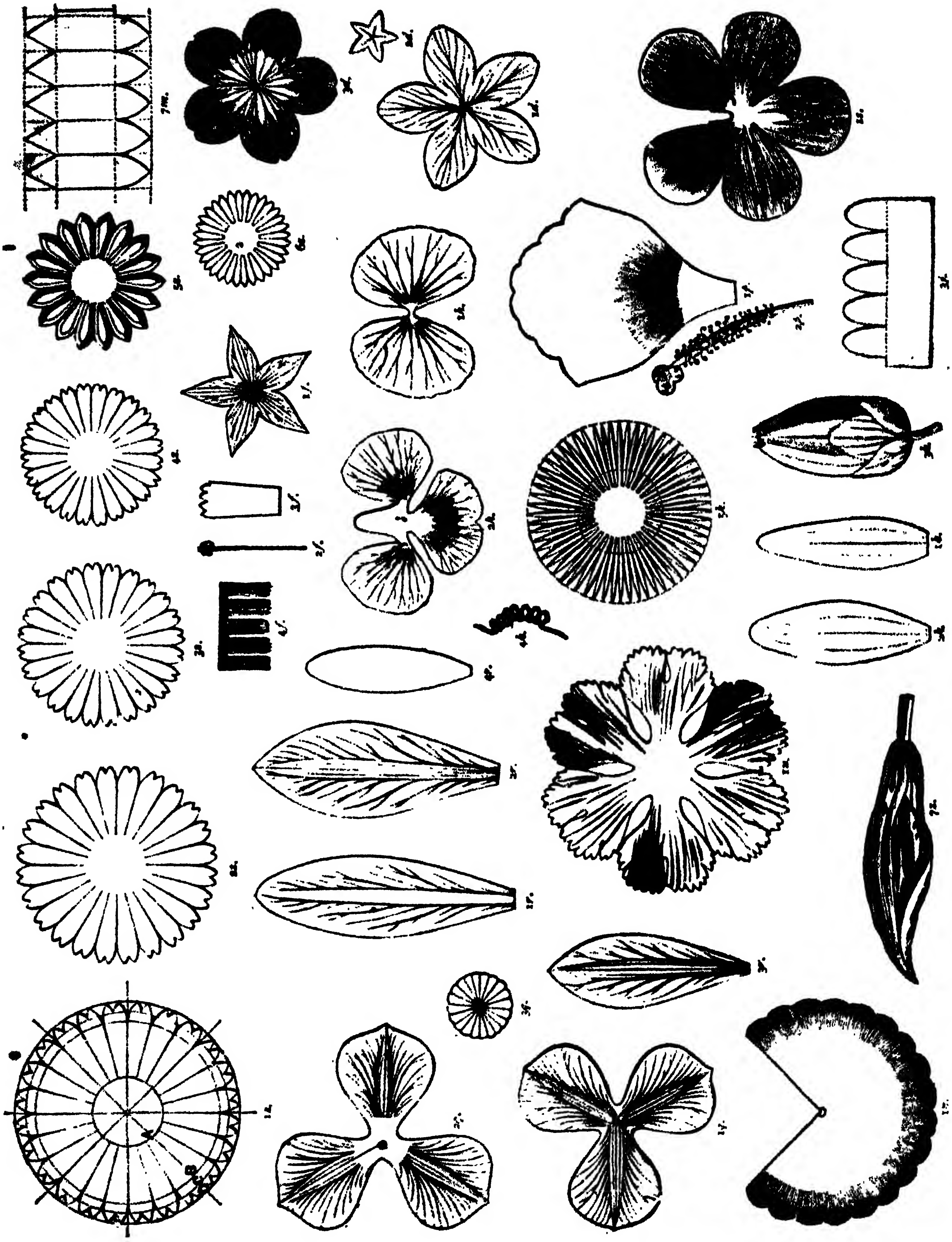
There is a kind of stew known in France as a *daube.* The article most usually dressed in this way is a turkey *en daube* or *à la daube* (for which words we have no English translation short of the detailed description we are about to give). But geese, ducks, old cocks and hens, legs of mutton and veal, are also done *en daube.* A daube is mostly employed as a cold standing dish for breakfast or luncheon; slices or joints of it garnished with parsley or scraped horseradish, may also be served, as side dishes or fill-gaps, at dinner. A daube, too, is excellent, and may be presented hot, as a principal dish; in which case, it should be surrounded by its trimmings and gravy.

The cleverest caterer will sometimes get taken in, and find she has bought an old bird instead of a young one. Now, old poultry and adult meat, even if tough, are *preferred* for a daube. They are found to contain both more flavour and more nutriment, if they *can* be made tender; and the object of this peculiar process is, to make them tender, in spite of all the resistance they may offer. The utensil employed for this purpose is called a *daubière,* or close-covered stewing-pot, mostly with a lid having a rim round its edge, to receive burning charcoal, though that is not absolutely necessary. To vary a little our description of utensils, we will illustrate the use of this one by a couple of receipts.

Turkey en Daube.—Take an old turkey, pluck and empty it, saving the heart, liver, and gizzard, which latter must be cleaned and scalded, and the thick inner skin peeled off. Singe it; cut off the neck where it joins the body; cut off the legs. Scald the legs; peel off the outer scaly skin; cut off the claws. Cut off the head; remove the beak and eyes; split it in two. Cut the neck into three pieces, after carefully singeing the hairs. Truss the turkey as for roasting or boiling, tying it with string. You may lard its breast with strips of bacon inserted with a larding-pin; but that trouble is not necessary. Put a few thin slices of unsmoked bacon at the bottom of your stewing-pot, and on them place your turkey. Around it put a calf's foot cut in two, or a couple of well-cleaned sheep's trotters, the turkey's feet, head, neck, &c.; two or three carrots split in quarters, several onions, two or three sweet bay-leaves, sprigs of thyme and parsley. Pour over it some good broth or stock, and season with pepper and salt. Some add cloves, garlic, sweet basil or knotted marjoram, two glasses of wine, and a small glass of brandy. Stew these slowly from five to six hours, according to the size and venerability of the turkey, over a very gentle fire; in fact, a large fierce fire will spoil the daube by converting it into horn. If there is no fire on the top, you may turn the turkey after three hours' stewing. If to be eaten hot, you simply lay the turkey on its dish, removing the string with which it was trussed; you surround it with the handsomest of the things stewed with it, and pour over it just enough gravy (with as much fat removed as possible) to serve with the portions helped. If it is to be saved till cold, strain the liquor through a sieve, and boil it down to two-thirds of its original quantity. Break two eggs into a saucepan; beat them up well; pour the liquor over them, and mix it thoroughly with the eggs; continue stirring till it boils; set it aside, and let it simmer for half an hour. Strain it again through a fine horsehair sieve; or, if wanted clear, pass it through a flannel jelly-bag. It is then ready to cool to make jelly for garnishing your cold turkey, either in little moulds or in a flat dish, out of which it can be cut with a knife in dice or strips.

N.B.—In the receipts given, our wish is that they should contain as few ingredients as is consistent with their efficiency in making palatable and relishing cookery, and also with economy. But in cooking, as in other matters, it often takes *so very little* to make all the difference between good, bad, and indifferent. We all know the influence of a single word, a look, a gesture, a tone of voice; good cooks are aware of the effect of a little pinch of this, a dust of that, and a tiny morsel or sprig of the other. Therefore, whenever many ingredients are given, as in the above receipt, it is not because they are all so absolutely necessary that the dish cannot be well prepared without them, but because it is better for having them all, when convenient. What you cannot get, you will not put in; what you do not like, you can leave out. These seasonings and flavouring matters are mostly, too, quite inexpensive. For those who have a garden, sweet herbs are of the easiest culture, except perhaps knotted marjoram and sweet basil, two of the most delicate and aromatic. Knotted marjoram, a perennial, deserves a place in a flower-pot, quite as much as many of the weedy things to which it is accorded. Sweet basil is a tender annual, thriving only during the warmest months of the year, when it is a favourite pot plant over a great part of the Continent, particularly for ornamenting butchers' and poulterers' shops, window-sills, or any corner where a bit of soft bright green looks pretty. In towns, a few plants of parsley, thyme, chives, and chervil, may be kept growing in one or two mignonette boxes, which will save the continual expenditure of pence.

Goose en Daube (nearly the same as for Turkey).—When a goose is too old to make a tender roast, you may dispose of it advantageously thus:—Empty and singe it; you may lard its breast or not, as you please. Prepare the giblets as you would for a pie or for stewing. Truss the goose by tying it with string. Choose, if you have any choice, a stewing-pot only just large enough to hold your goose; lay slices of bacon at the bottom; on them place the goose; pack round it the giblets and a calf's foot halved or quartered. Chop together parsley, chives, two shalots, one clove of garlic, thyme, two bay-leaves, and basil or knotted marjoram. Season this with pepper, salt, and a little grated nutmeg, and distribute it amongst the contents of your stewpot. Add a few peppercorns, and, if there is still room, a couple of carrots split in quarters. Pour over all a couple of glasses of wine, half a glass of brandy, and as much water as will nearly cover it. Put on the lid as tight as possible, and let it cook *very* slowly for five or six hours. When done, lay the goose on the dish on which it is to be served cold. Strain the gravy, skim off the fat, and pour as much of it over the goose as the dish will hold neatly in the shape of jelly. It thus makes a handsome standing dish. The giblets and calf's foot (with the bones removed) can be served up as a hot stew, either at once, or warmed up another day. The daubière, or stew-pot with a lid to hold live coals, is also called a *braisière,* from *braise,* small charcoal, especially that obtained from bakers, who extinguish it when their oven is heated. For ducks, fowls, legs of pork or lamb, a smaller stewpan, like that figured, is desirable. Clear red-hot cinders may be laid on the lid, but they require to be renewed more frequently than charcoal. This mode of cooking (which we may call *braising,* and from it form the verb *to braise*) has for its special object to cause as little evaporation as possible, and so to retain all the natural juices and flavour of the meat. What is not left in the meat is fixed in the jelly produced by it.



PAPER FLOWER MAKING.—II.

THERE is not a handsomer gem of the garden than the *Passion Flower*. There is a centre made of a curled piece of the fine green wire (see Fig. 4*k*). There are also three stamens and five anthers. Hearts can be bought for these. Then two rounds, cut in cardboard with a penknife, one purple, the other green (see Fig. 5*k*). They are coloured with a brush of camel's hair. These are arranged next to the wire. Then come the petals, cut in thick white paper, first five of 1*k*, the smallest size; then five of 2*k*, alternated and behind. 3*k* is for the bud, made over a wadding centre, like rosebuds. The calyx is like Fig. 9, page 265, vol. i. There are two of these of pale green, the outer one turned back. Scarlet petalled passion flowers are beautiful.

Of the *German Aster* there are four sizes (Figs. 1*z*, 2*z*, 3*z*, 4*z*) and a calyx, Fig. 5*z*. These are of pale yellow. After they are cut out they must be crimped. The heart is illustrated in Fig. 8, page 265, vol. i. Put four of every sized petal round the heart; pinch up every piece as it is put on, and crush it well round the "heart." The first size of these diagram cut daisies, plain or Michaelmas, and the same heart may be used. The four diagrams also serve for China asters cut in various shades of red and lilac. The German aster should be double the size of the diagram. 6*z* in the daisy calyx.

To cut the China Aster, German Aster, and Daisy, draw three circles with a bow pencil, like Fig. 1*z*. Divide this in four by a horizontal and a perpendicular line, and divide each of these quarters again by a line. All these lines are shown in Fig. 1*z*. Then in every one of these smaller divisions draw three flower petals, converging from the centre to the second circle. Beyond the second circle to the edge they are sloped away and indented in the centre. When complete, cut out the edges and divide the petals as far as the smallest or inner circle. Fig. 4*z* gives the first size for the aster. There are four more sizes, each a little larger than the other, but the centre circle, which is uncut, is of the same size in every one of them. Daisies are cut of white paper tipped with carmine, if they are field flowers, and hearts like the asters. Michaelmas daisies are of various colours, and are fuller, that is, have more rows of petals on them; the hearts can be made of yellow Berlin wool. Fold a thread of it nine or a dozen times over a card an inch wide. Slip a bit of cotton through it at one edge and tie the wool tightly. Then slide the wool off the card, and cut open the edge not tied. Loop the top of a bit of thin wire, and tie the little wool tassel upright at the top of it, about a quarter of an inch to the wire, leaving the ends a quarter of an inch long. If not quite level at the extremities, cut them so as to make them appear of a soft equal pile.

An *Arum* is easy to make. A twist of paper, like a sugarloaf, of double tissue (gummed together) cut very low at the join, and with a long point, and the other side curled over. Make a twist of orange paper, like a spill, but as thick round as the little finger, damp it over with gum, and dip it into powder yellow chrome. A stiff wooden stem, covered with paper and mounted with a few large leaves, suits an arum. Most children are familiar with the wild arums in the hedges, and call them "lords and ladies," Fig. 7*z*.

Canterbury Bells are cut out of lilac tissue paper. They are joined round by the side bit, and the bulb of the lower part by the side pieces projecting on each division. The points at the top are curled back. This (Fig. 7*m*) cut smaller, makes hyacinths; but for these make one point a little longer than the rest. Cut still smaller, it can be used for lilies of the valley. The dotted lines show how to draw the diagram to any size by ruling four horizontal parallel lines, and dividing these perpendicularly into five equal portions. Draw the points at either end, and the pattern is complete. Size for Canterbury bells, three times that of the diagram.

The *Jasmine* is a troublesome little flower to make. The ready cut shapes are useful for this. 1*f* is the flower, to be placed over the stamen, 2*f*; 3*f* is the bud, and 4*f* the calyx. The flower and bud are made of thick paper, white or pale yellow, and veined.

A *Variegated Geranium* (Fig. 1*s*) is an example of another way of forming a flower composed of several rather small petals. It may be made of double tissue or thick white paper, white variegated with red, or rose-colour veined with deeper red. The variegations of geraniums are multitudinous. The geranium is veined on the cushion like the scarlet geranium, Fig 1*g*, page 165.

Figs. 1*h* and 2*h* represent the parts of a *Heartsease*. Cut a piece like 2*h* of thick saffron-hued yellow paper. Vein it well and goffer it slightly, to give it the irregular appearance of a heartsease, or manage the latter manipulation with scissors. Cut 1*h* out of rich dark brown silk velvet. Cover the back with plenty of thick gum. When dry, it will curl enough. Mount the yellow petals on a "heart," and then the little green calyx. Lastly the velvet leaves. The pointed corner turns back on the stalk to make the spur of the plant peculiar to this flower and to the violet.

Nympholitæ is useful as a small blue plant. It must be cut from white tissue, the edges coloured with powder-cobalt, mixed with a little gum water. One round makes a flower. Fig. 3*d* represents it, and 2*d* the calyx. The blue band is half the depth of the flower.

A *Convolvulus* should be made of double white paper, Fig. 1*n*. Tinge it deep blue with powder-cobalt round the edge. When this is dry, tinge it with lemon-yellow, nearly to the centre, and meeting the blue. It is joined by the slight, straight line observed on one side. This is a type of a distinct shaped flower, and shows how these plain cups are formed. The triangular piece marked off by dotted lines, is to be cut out alone for the bud, not cut out of the flower as it seems here, but made and worked up separately. Curl the edges of the convolvulus outwards. Size, double that of the diagram.

Fig. 1*p* is the *Scarlet Ibiscus*, a large and rich flower. The petals are black, at the shaded part in the centre. The heart, Fig. 2*p*, is made of wax, covered with small stamens. The head of it is yellow, the stem is palish green. The calyx is like the German aster.

The *Camelia*, like the moss rose, requires no purchased heart. It does not even want a purchased calyx. It may be made of white, yellow, pink, rose, or deep red paper. Double the number of petals needed must be cut out; cement them together two and two, to make them of double paper. Make a ball, the same as for the rose centre, goffer six petals of 1*a* (page 165 of this volume), and arrange them for the goffered edges entirely to conceal the heart. Over these place six goffered petals of 2*a*, goffer all the rest, and place them in turn according to size round the centre, with the edges turning back—five of 3*a*, ten of 4*a*, and ten of 5*a*. Cut in pale green paper twelve each of 6*a*, and place two and two together to make them double. Put round the three loops first, and between them the three small ones. They should be slightly goffered outwards. Size, half as large again.

The *Pleasant-eyed Narcissus* makes up well. Cut for the centre a round of double yellow paper, Fig. 3*q*. Tinge them green towards the heart, add at the edge a narrow band of intense carmine, make a little hole in the centre, and slip it over the heart. The petals are of two sizes, Figs. 1*q* and 2*q*. Cut them in thick dull white paper, or, double white tissue gummed together, vein them like the diagram, put on the smallest first, and then the largest, alternating the petals. Finish with a calyx. The heart is three little black dotted stamens.

The large *White Lily* is a very beautiful and effective flower. The heart, Fig. 5, and calyx, Fig. 6, were given in page 264, vol. i. These are generally purchased. The lily should be made of dull white thick paper. Double tissue or tissue over wax, may be substituted. There are two sized petals for the flower, three of each cut by diagrams 1*r* and 2*r*. Vein them with five straight marks down the centre, and veins converging each way. Put the three smallest petals round the heart at regular distances. Afterwards, outside these, add the three largest ones between the spaces. Of Fig. 3*r*, a smaller petal of the same kind, cut three. Goffer them at the points, so as to close together. Cut six of Fig. 4*r*, in pale green opaque paper, and put three round the bud first, and afterwards the three others. The stem is constructed of wood, such as half a garden stick split through.

The *Stephanotis* is made from opaque white paper, veined by the pincers. Like the geranium, it is a specimen of a flower of five petals, cut in one single circle, but the shape is different from the geranium, and the petals are more uniform and pointed at the extremity. The petals are marked 1*d*, and the little calyx, 2*d*.

The *Carnation* is an instance of a flower not made in the petals, as found on dissection of the natural blossom. It is very successful if cut out of a deep yellow or orange paper, and streaked into broad and narrow irregular lines of carmine, like Fig. 1*u*; also on pink paper colour with carmine. The carmine, put on with a camel-hair brush, may either be used very deep and thick from cake or moist colour, or tube water-colour, or powder-colour mixed thick with weak gum-water, on a plate or palette. It must thoroughly dry before the flower is manipulated. The details of making up carnations have already appeared in vol. i. The paper must be cut twice the size of Fig. 1*u*.

Grouping.—Blue flowers do not look so well as other colours on paper. But if they are omitted, a happy effect can be produced by the substitution of bright mauve, such as is seen in rhododendrons. This colour lights up a group of flowers very much, and a little of it goes a great way. A group of pink and yellow roses, white azaleas, carnations, a very little dead white, plenty of rich green leaves, some heartsease with their bright yellow and deep velvet petals to give emphasis to the group, a rich orange tea-rose bud or two, and a few dark, rich, clove carnations and a damask rose, or a spray or two of scarlet fuchsia to give tone and save the general colouring from insipidity, are the sort of ingredients necessary to form a large handsome group. Of course, various flowers can be introduced, always adhering to the same principle of proportion of colour.

ODDS AND ENDS.

Tomato Catchup.—One gallon of tomatoes (that is, after they are all boiled down), four tablespoonfuls of salt, three tablespoonfuls of pepper, three tablespoonfuls of mustard, half a tablespoonful of allspice, half a tablespoonful of ground cloves, one tablespoonful of cayenne pepper, one pint of vinegar, to be simmered for one hour. Scald and skin the tomatoes first, and thoroughly boil them (they can scarcely be done too much) before adding the above ingredients. When cold, put into old pickle bottles and seal the corks.

When to buy Candles.—Always purchase those made in winter, as they are the best; and buy a good stock of them at once, as they improve when kept for some time in a cool place.

Discoloured Wax Candles.—If wax candles discolour by keeping, rub them over with a piece of flannel dipped in spirits of wine.

To re-japan Old Tea-trays.—The tray that we wish to repair must be first carefully cleansed from all adhering dirt by washing with soap and water, the rust being removed by rubbing the part with a piece of leather on which some rotten-stone has been applied. After being thoroughly cleansed, the trays are to be wiped dry, and exposed to heat before the fire. Any portions from which the varnish may have been completely denuded is then to be retouched with a mixture of either colour or bronze-powder, mixed up in copal varnish. This is to be done with a fine painter's pencil as neatly as possible. When this is quite dry, the whole surface of the tray is to be varnished with a coat of copal varnish. After this is done, the tray should be put in a warm place where the varnish may dry and harden. It is also very useful, where it can conveniently be done, to place the tea-tray in an oven at a temperature a little above that of boiling water, as where this can be done the appearance of the varnished article will be greatly improved.

To fix Chalk and Crayon Drawings.—Chalk drawings may be fixed by applying to the back of the paper some fixing liquid. To do this, the drawing should be turned over and the corners held that the surface may not touch anything. The back of the drawing is then brushed over with the solution until the liquid soaks through the substance of the paper; this brushing is again to be repeated. In doing this it is necessary to be very careful to apply the same quantity of solution to every part of the paper, for if one part of the drawing receives more than another a stain may be left. The drawing is then turned and laid on its back and allowed to dry. The fixing solution to be employed for this purpose is prepared by soaking an ounce and a half of isinglass in five ounces of distilled vinegar for twenty-four hours. This is to be added to a quart of hot water, and the liquid left at a gentle heat—being frequently stirred until all the isinglass is dissolved. The liquid must now be filtered and added to an equal quantity of spirits of wine.

To make Elder Wine.—Having stripped off the berries place them in a large pan or tub, and a little more than will cover them with water. Let them remain four or five days, occasionally squeezing out the juice with a presser, made of a small block of wood like the head of a mallet, fitted with a handle of suitable length. When they have remained sufficient time, press out the juice finally through a fine sieve or straining-canvas. The juice being quite clear, add three to four pounds of raw sugar to each gallon of juice; half a pound of ginger, two ounces of cloves, and one or two ounces of allspice (according to palate) to every four gallons. Let the whole boil for a full half-hour after it commences to boil; pour it into an open cask or tub, and when lukewarm add yeast placed on toast, keeping it well covered, and let it work for a little less than a week; at the end of which time skim off the yeast, put it in a cask and leave it to ferment, with the vent-peg loose. When the fermentation ceases, bung the cask tightly, and let it remain for two months at the least, when it will be fit for use; although a longer time than two months is preferable, if the wine be not especially required. It should be remarked that the addition of a bottle of brandy, put into the cask before bunging-up, greatly improves the wine, although it is not absolutely essential.

Rice Froth.—For one-third of a pint of rice allow one quart of new milk, the whites of three eggs, three ounces of loaf sugar finely powdered, flavouring of lemon or almond to taste, and a quarter of a pound of raspberry jam. Boil the rice in a pint or rather less of water; when the water is absorbed add the milk, and let it go on boiling till quite tender; keep stirring to prevent it from burning. The flavouring, if an essence, to be dropped among the sugar. When the rice milk is cold put it in a glass dish. Beat up the whites of the eggs and sugar to a froth, cover the rice with it, and stick bits of jam over the top.

To destroy Crickets or Beetles.—Put some strong snuff in the cracks and holes from whence they come. The parings of cucumbers will, if strewn about near their holes, drive them away.

To destroy Flies.—Strong green tea, sweetened well, and set in saucers about the places where they are most numerous, will attract and destroy them. This plan is much to be preferred to the use of those horrible fly-papers, which catch the poor insects alive, cruelly torturing them while starving them to death.

To clean an Oil-can.—Drain the can thoroughly of all dregs; then take a small mop with a long stick—such as is used for cleaning lamp glasses—or a piece of rag tied to a stick will answer the same purpose; with this wipe out the can all round from any sediment. Have ready a strong, warm brown soap lather, with which cleanse the can; then rinse it in cold water, and drain it well afterwards.

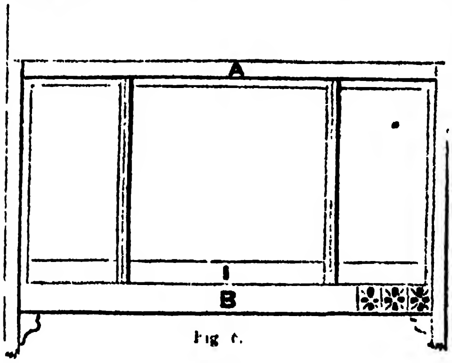


Fig. 1.

For this purpose we have selected as an example an ordinary bow window, having three openings, a plan of which is shown in Fig. 2. In this figure the brickwork or stone piers are marked A A, the window sashes are shown at C C C, and the dotted line, B B B, indicates the outline of the projecting sill, which is, in windows of this description, usually rather wider than in those of the ordinary form. In order to fit a fernery to a window of this construction, three cases will be required, as shown at D D D in the same figure. For each of these, three sashes of the ordinary make will be required, one square one for the front of each part, and two which will require to be bevelled at the top end to receive the roof, as in Fig. 5. As the construction of sashes has been already fully explained in previous articles, we need not here enter upon it, but would merely remark that for this purpose the work must be very accurately and neatly executed. It will be advisable

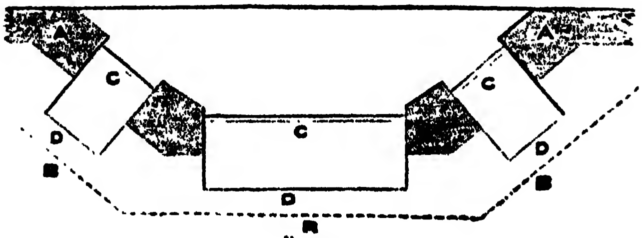


Fig. 2.

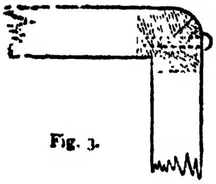


Fig. 3.

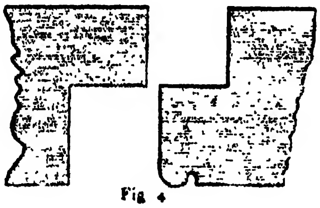


Fig. 4.

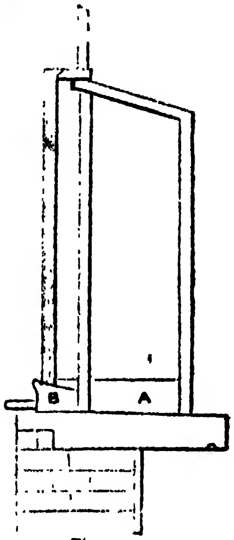


Fig. 5.

THE HOUSEHOLD MECHANIC.—XLI.

FERN CASES AND WINDOW GARDENS

(*continued from p. 150*).

It frequently happens that the outlook from some particular room in the house is not altogether pleasant, or that the window is so placed in relation to the street as that passers-by can observe what is going on in the interior of the room. In such cases as these, window gardens will be found exceedingly useful as well as highly ornamental—the plants forming a natural blind of the most elegant description. The case may be placed either upon the inner or outer part of the room, as may be preferred, or as the construction of the window will allow But it should be borne in mind that if the case be placed outside the window, in the air, the temperature will be much lower than if it opened into the room; and this will materially affect the plants which are to be grown in it. If it be outside, only the hardier ferns will survive the winter, but most of those generally grown will live all the year round in a case which opens into the room. We will give the necessary details for cases of both kinds, leaving the constructor to select such as will best suit his purpose.

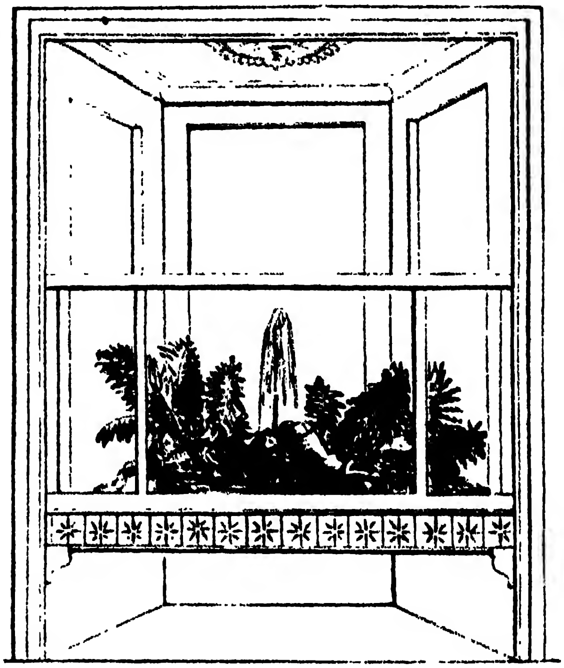
to keep the bars as small as possible, as the slighter they are, the more pleasing will be the effect. Unless the windows be unusually large, no central bars will be needed, except perhaps in the roof, as sheet glass may now be procured of almost any required dimensions. Although it would be somewhat easier to construct these cases by building them up a piece or two at a time, we should not advise such a course of proceeding—for this reason, that if at any time they have to be removed, they will be utterly destroyed; while, if separate and complete sashes be fitted, the whole can be taken down and refitted in another position without loss or damage. The bottom rail of the sashes, A, Fig. 5, should be of sufficient width to cover the box containing the plants—say five or six inches—and must be cut to fit up to the sill of the sash-frame, B. The width of this sash from back to front must be measured from the outer part of the sash-frame, and, of course, all parts of the case must be just outside the line traversed by the top sash, or it will not open.

The end sashes being made in pairs, the front ones, which, as we have before mentioned, will be square, may be made; and then those for the roof, which should be fitted as closely as possible to the middle rail of the

window-sash, or, if the case is to be water-tight, just underneath it. But in this case the roof must be easily removable, or the window will be fixed. All the sashes being made, they should be fitted into their places before glazing. The best plan will be to mitre the angles, as shown in Fig. 3, and if the corners be rounded it will give a neater appearance to the work. In some outside cases we have seen, the roof has been formed of one square of bent glass; this is very neat in effect, but as bent glass is expensive, and not always easily obtained, we should prefer the flat roof for any exposed situation. Should this be preferred, however, the top rails of the end sashes will require shaping, the rabbets of course following the same curve. When the work is all fitted and glazed, it may be secured by means of round-headed screws, the end sashes to the sash-frame of the window, and the other parts to these. The screws should be well greased before use, as, in the event of the case being taken down, this will ensure their easy withdrawal.

The cases we have just described are of course quite as suitable for ordinary windows having only one opening, as for that we have selected as an example; the only difference being that only one frame will be required instead of three.

The last description of fern case we need mention is that which is adapted to the interior of a window; and with the view of making these papers as complete as possible, we will select a window of the same shape as that shown in Fig. 2, as that will be the most complicated which the amateur will be likely to construct for himself, while the details of the work will serve equally well for an ordinary square window as for the shape here described.



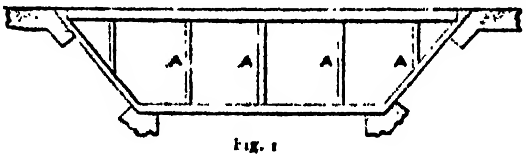


Fig. 1

The first proceeding will be to prepare two styles of the length required to reach from the floor to the top of the case. These will require fitting to the angle of the window. Wood of about three inches wide, by two inches in thickness, will be suitable. Into these, at the proper height, must be morticed and tenoned the top and bottom rails, marked A and B, in Fig. 6. Two inches square will be a good size for the top rail, which must be rabbeted on the inner top edge, to receive the lath forming the roof. The bottom rail must be wide enough to nearly cover the box containing the plants, and, of course, sufficiently strong to support the weight of the earth and artificial rockwork placed in the case. The height of this rail from the floor of the apartment in which the case is placed will depend upon that of the outer sashes of the window, as the top edge of the box should not be seen above the bottom rails of these. When this rail is morticed into the styles, fillets should be screwed upon the walls, as shown in Fig. 1, and upon these the cross-bearers, or joists which are to support the bottom of the case, may be placed, in the manner shown at A A A A in the same figure.

To support the roof of the case, similar fillets must be screwed to the sash-frame, at the exact height of the lower part of the rabbet upon the top rail of the front. When the framework is thus completed, the floor of the case may be laid; care being taken to incline it to one corner, so as to ensure perfect drainage. The zinc tray should now be fitted, and a pipe inserted at the lowest point; and, if this can be carried to the outside of the building, it will be advantageous.

In the design given in Fig. 7, it is proposed to place a small fountain in the centre of the case, and where this is to be carried out, the requisite pipes should be inserted before the work is further advanced. The sashes should now be prepared. Of these three will be required for the front, and one for the roof of the case. About one inch and a half will be a suitable thickness for these, and they should be well and neatly made. We should advise that the two small sashes in the front should be fixed, as well as that forming the roof. It is a matter for the constructor to decide whether he will hang the centre sash, or merely arrange for lifting it out when required. We think the latter plan the best, as, when arranging the plants, the large square of glass will be safer if quite out of the way. The smaller sashes should be rabbeted upon their edges, as shown in Fig. 4, and the larger one made to fit into them. It will be advisable to insert several stout bars in the roof sash, as to this may be suspended baskets where required. The only thing now remaining will be to decorate the bottom rail of the case, and for this purpose nothing can be more suitable than the encaustic tiles we have before recommended for flower-boxes. The fillets which support these should be deeply grooved, and screwed to the rail itself.

With respect to the wood used in the construction of fern cases, we should advise for all outside work good yellow deal, as that will be the most durable; while, for the interior cases, pine, of good quality and free from knots, will answer equally well, and be more easily worked. For glazing, either plate or sheet glass may be used. The first is expensive and rather heavy, but far more elegant in appearance than the latter, which is often offensive to the eye, on account of its waviness. Patent plate is cheaper, and will mostly answer all requirements; and for all ordinary purposes this is what we should recommend.

Beside the cases we have described, there are some constructed of combined wood and metal. In these, however, the same principles of construction are applied, the only difference being in the material employed. The details of working in metals will be given in future numbers under the heading of the "Household Mechanic," but we think the amateur will find that wood will be by far the most workable material for his use.

In conclusion, we would remark that in all cases it will

be advisable to make drawings of the work before it is commenced. This will greatly facilitate its execution; and, however difficult it may appear to carry out the designs here given, with few tools, and limited mechanical skill, we can assure the household mechanic that if our instructions are carefully followed, he will, with ordinary patience and perseverance, be sure to succeed. This kind of work, indeed, in addition to its usefulness, will be found most interesting when once the early difficulties are overcome.

We may perhaps with advantage add a few words as to the use of "virgin cork" for decorative purposes. The "virgin cork," or first-stripped bark of the cork-tree (*Quercus suber*), has the especial qualities of lightness, porosity, and durability. It is procured from the forests in Portugal, and sold in bales. For decorating conservatories or ferneries, it is very valuable, being an excellent substitute for rustic wood-work or pottery.

BEER, AND HOW TO BREW IT.

III.

We cannot do better than follow our practical directions for brewing with some explanation of the series of chemical changes of which the process consists. We will do so as plainly and briefly as possible. Barley, in common with other kinds of grain, is chiefly composed of starch. This in the process of malting is partially converted into that variety of sugar known as grape-sugar, and a substance called diastase is also formed. When the malt is saturated with hot water in the mash, the diastase reacts on the remaining starch and converts that also into sugar. The sugar is dissolved by the water, and sweet wort is therefore grape-sugar held in solution; fermentation changes the sugar to alcohol and carbonic acid.

It is to some extent possible to brew with unmalted barley; in this case, the process of sugar-making is wholly carried on in the mash-tub. But to get a satisfactory wort from unmalted barley is not easy; the mashing requires nice management, and the wort will be inferior both in flavour and keeping power. It was, however, used extensively for small beer by the Edinburgh brewers some years since, till the Excise put a stop to the practice. "Foxing," a defect in brewing which imparts a well-known disagreeable flavour to beer, is owing to some portion of sugar in the wort being converted into acetic acid; it usually results from too slow cooling, but it may also arise from delay between mashing and boiling. The reason why water is allowed to cool before mashing should also be stated. Water at or near the boiling point converts starch into gum. If it be used too hot a thick paste is formed, from which the wort will not run; it involves the loss of the malt, and is called in brewers' slang, "setting the goods." Malt which has been exposed to the air for some time after being dried and ground is less liable to set than that from the kiln. High-dried malt sets less easily than pale, and for this reason, in brown malt the starch is partially charred, is more soluble, and does not thicken so readily. Stout and porter are therefore mashed at much higher temperatures than pale ale.

High-dried malt is rarely employed for family brewing, nor can we upon economic grounds recommend its use. The dark colour, which is gained by charring the grain, can only be acquired at the expense of loss of strength. During the war of the French Revolution, the price of malt became excessive, and as the brewers found that more strength was to be obtained from pale than brown malt, they mixed the two for porter making, and made up the deficient colour with burnt sugar. As there was nothing at all prejudicial to health or the revenue in the practice, it has not been prohibited, and is still continued. Liquorice and flour are also extensively used to give body and colour to porter.

Sugar may often be used with great advantage in family brewing. Twelve pounds of good brown sugar are equal in strength to a bushel of malt, and the cost is not one half. Some saving may, therefore, be effected by using it: but it should be in table or small beer. It is not adapted for fine ale; the flavour is not equal to that of malt, nor is the keeping power so great. Sugar may either be put into the boiling wort, or, with less waste, stirred in afterwards.

Camomile flowers seem to have escaped the notice of writers on brewing, but they are well known to the makers of bitter beer. They are twice as powerful as hops, give a pleasant bitter, are a fine tonic, and have the same conservative power as the hop. The writer has been accustomed to use the two together in the proportion of one pound of camomile to six of hops. They may be grown (as has been the custom of the writer) by those who have gardens. The cultivation is very simple, and involves no trouble beyond planting, and gathering and drying the flowers; or they may be bought at about the same price as hops.

If the beer in the barrels does not become clear spontaneously, it may be made clear by the use of isinglass. To fine a barrel of beer, dissolve an ounce of isinglass in a little good beer; some persons prefer that the beer should be sour, which we do not recommend. Draw a pailful from the cask, put in the finings, and stir briskly till a head is produced, then pour in at the bung. The action of the isinglass is to form a kind of scum over the top of the beer, which gradually sinks to the bottom and carries with it the floating impurities. If the beer is very muddy a larger proportion of isinglass should be used. In those extreme cases in which isinglass does not succeed, salt, alum, or quicklime must be employed.

Beer is always liable to become sour in the barrels, more especially in warm weather. To prevent it, it is well to put in a handful or two of fresh hops. Various other receipts have been recommended for the purpose; such as a new-laid egg, wheat, laurel or walnut leaves suspended from the bung; but probably nothing will be so efficacious as keeping the cellar at an even temperature. The heat is found to be best about 55°. When beer has become stale the best method of restoring it is, to boil a few hops in a little good beer and pour in; and to hang some dry mustard in a muslin bag from the bung.

Before leaving the subject, it will be well for us to consider the relative advantages of home brewing and purchasing beer. It must be frankly admitted that, regarded as an article of luxury, no home-brewed can be compared in delicacy of flavour with the high-priced beverages of our best brewers. This, at least, is the opinion of the writer; all persons will not agree with him. But a high-class beer is not the one most in requisition for family use. For the table and ordinary drinking, a sound and good, but not a superlative drink is looked for. The question will mainly be one of economy; and we must have recourse to figures.

To brew fifty-four gallons equal in strength to brewers' beer at one shilling per gallon will require:—

	£	s.	d.
3 bushels of malt at 8s. 6d.	1	5	6
3 lbs of hops at 1s. 6d.	0	4	6
Wear and tear, and interest on brewing plant ...	0	7	0
Brewer and fuel (paid for by yeast and grains).			
	1	17	0
Brewery beer (54 gall.) ... ... £...	2	14	0
Home-brewed ditto	1	17	0
Saving on home brewed	£0	17	0

The prices of malt and hops given are average ones. The strength of the beer brewed with them will be rather above than below that of the brewers at one shilling per gallon. If economy be a matter of importance in the family there can be no doubt but that the brewing should be done at home, and to this must be added the great advantage of having an article known to be free from adulteration.

These articles have been given in compliance with the expressed wish of some of our readers; others, who hold principles opposed to the use of all intoxicating liquors, may probably object to them. For the principles of those persons we have the greatest respect, being ourselves convinced that whatever may be the advantages which arise from the use of such drinks, they are more than counterbalanced by the evils which spring from intoxication. Were all intoxicating liquors abolished by general consent we should be the last persons to ask for their revival. Till such is the case, however, we are not justified in omitting directions for family brewing from a magazine of domestic economy intended for all.

THE TOILETTE.—XVIII.

PERFUMES, WASHES FOR THE COMPLEXION, ETC.

Sweet Bags for Linen-drawers.—Small silk bags may be filled with mixtures of dried flowers in powder: cloves, mace, nutmeg, cinnamon, leaves of mint, balm, southernwood, ground-ivy, laurel, hyssop, sweet marjoram, origanum, rosemary, lavender, cassia, juniper, sandal-wood, rosewood, roots of angelica, zedoary, orris, also fragrant balsams, ambergris, and musk; but the latter should be carefully used among linen.

Scent Bag.—This will prevent moths injuring clothes: one ounce of cloves, caraway-seeds, nutmeg, mace, cinnamon, and Tonquin beans, and of orris-root as much as will equal the other ingredients when put together. Grind the whole well to powder, and put it into little silk bags.

Lavender Scent Bag.—Half a pound of lavender flowers free from stalk, half an ounce of dried thyme and mint, a quarter of an ounce of ground cloves and caraways, one ounce of dried common salt, mix them well together, and put them into silk or cambric bags.

Soap for whitening the Hands.—Into a wineglass of eau-de-cologne and a wineglass of lemon-juice, scrape two cakes of brown Windsor soap very finely, and mix well. When it becomes hard it will be an excellent soap for whitening the hands.

To remove Sunburn.—Take two drachms of borax, one drachm of Roman alum, one drachm of camphor, half an ounce of sugar-candy, and a pound of ox-gall. Mix and stir well for ten minutes, and stir it in the same way three or four times a day for a fortnight. When clear and transparent, strain through blotting-paper, and bottle for use.

To whiten the Finger-nails.—Take two drachms of dilute sulphuric acid, one drachm of tincture of myrrh, four ounces of spring water, and mix them in a bottle. After washing the hands, dip the fingers in a little of the mixture, and it will give a delicate appearance to the hand. Rings with pearls in them, and such as have stones set with foils to colour them, should always be removed from the fingers when the hands are washed.

Tincture of Roses.—Gather fresh leaves, or rather petals, of roses—the common cabbage-rose will suffice—and drop them into a wide-mouthed bottle, without crushing them; pour upon them sufficient spirits of wine (strong) to well cover them; cork the bottle securely, and tie it over with bladder and kid—a bottle with a glass stopper will answer best, to avoid evaporation, as corks take up essences. This tincture will keep for years, and yield a perfume little inferior to otto of roses.

SUN-DIALS.

In the present age, when clocks are so abundant that a tolerably good one may be bought for two shillings, there would appear to be danger of the more ancient chronometer, the sun-dial, being forgotten. We should be sorry should such be the case, for it is an instrument which has long done good service to man. As a keeper of time, it is certainly unequal to the clock for practical purposes; for, in our cloudy northern climate, no shadow will be cast to tell the hour on one-half of the days in the year, while for early morning and for evening it is almost useless, and quite so during the night. But it does possess the advantages of telling time accurately whenever it tells it at all, and of being an instrument which, more easily than the clock, can be made by any ingenious person. Making dials forms an interesting intellectual amusement, affording scope for both thought and taste, and has occupied the leisure hours of many eminent men. We believe that many of our readers will be glad of a few plain directions on its construction.

Many different varieties of dials have been invented, some of which are extremely complicated; among which must be classed the declining and reclining sun-dials, and the moon-dial, which is, perhaps, the most complicated of all. But we propose to treat only of the more simple ones, which are, at the same time, best adapted for affixing to the house or placing in the garden; and these are, indeed, so easily made as to be within reach of the capacity of every person.

The position in which a sun-dial will usually be erected will be upon a pedestal in the garden, or upon the front or other walls of a house. Upon pedestals the flat, horizontal dial, which will tell as much as sixteen hours, is commonly used; for affixing to walls, the vertical dial is generally employed, and different kinds must be used, according to aspect. Of these the most complete is that for a wall facing due south, as it will indicate the hours from 6 a.m to 6 p.m. It is also the most symmetrical, and therefore capable of being made the most ornamental. Dials for east and west walls are perhaps more simple of construction, but they will tell only about eight hours in the day. It is for these three descriptions of dials alone, as being of practical value, that we shall give working directions. A north dial may easily be made, but as it will tell four hours only, it is rarely employed. Dials may also be constructed for walls which do not face duly any cardinal point, but these are too complicated for our purpose. Generally, when a wall does not exactly face one of those points, it is better to make one side of the dial so project as to give it the desired aspect.

The theory of dialling we should find difficult to explain fully without the use of diagrams and a long scientific dissertation; we shall therefore briefly say that the horizontal dial represents the plane of the horizon, and the vertical dial a plane at right angles to it, while the gnomon, which casts the shadow, represents the axis of the earth. This, therefore, must be more or less inclined to the dial, as the place for which the dial is intended is nearer to or further from the equator; hence, before making a dial, it will be necessary to ascertain the latitude of the place. From a terrestrial globe this can at once be learnt by any one who has access to and understands the use of such an instrument; or, which is much easier, the latitude of the place, or that of a town sufficiently near for all practical purposes can be found in the index appended to most atlases.

Materials.—The horizontal dial is usually engraved on a plate of metal, or a slab of stone or slate. The latter will probably be preferred by the amateur diallist, since it is always readily procurable, and lines and figures may easily be cut in it, even with the point of a knife; and it also stands weather well, and is generally suitable for the

purpose. The gnomon, by which the shadow is cast to point the hour, is better made of metal, brass being best; but in situations where there is no danger of breakage, slate may be used for this purpose also. When the diallist wishes to make a metal gnomon, his better plan will be to cut a pattern in wood of the exact size and shape, and to place it in the hands of a brass or iron founder, to be cast. The cost for brass will be about tenpence per pound, and twopence halfpenny for iron. The dial itself, if preferred, may be cut in wood or modelled in clay, and afterwards cast in iron.

When a vertical dial has to be placed on the smooth front of a stone, brick, or stucco building, it may be sufficient to merely paint the space occupied by it of a light colour, and to mark in the lines and figures with black. On vertical dials much painting and even gilding and illuminating may be employed, and the decoration of them with appropriate mottoes is an ancient and laudable custom. With regard to colouring dials, however, it is desirable, upon those parts where the hours are indicated, that tints rather than pure colours should be used, as the latter do not permit the colour to be seen so readily. The proper colours will, of course, be oil-colours, as they stand the weather best, and for gilding, oil-size must be employed.

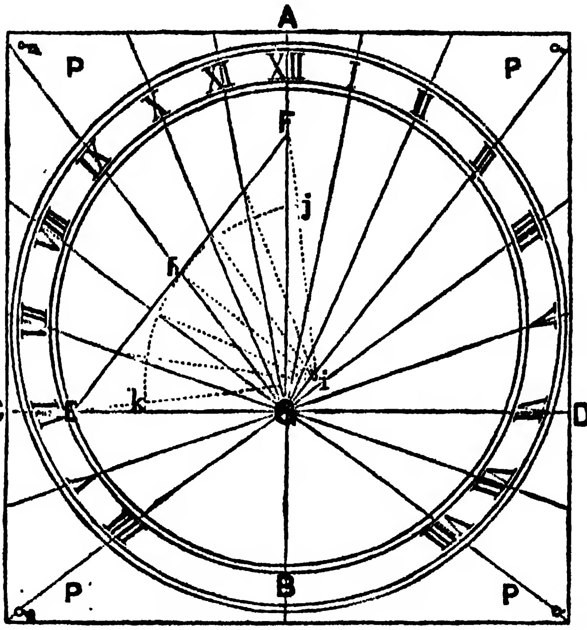


Fig. 1.

Generally, however, it will be found more convenient for the diallist to letter and ornament his work on a slab of slate, or sheet of zinc, and to affix it to the wall with hooks, when completed, rather than to paint it in position.

How to Draw a Horizontal Dial. — Take a piece of paper (P P P P, Fig. 1) of the size of the proposed dial, and through the centre draw a meridian line, A B, which will represent the 12 o'clock line. At somewhat more than one-third from the end of this, and cutting it at G, draw a second line at right angles to it, C D; this line will represent 6 o'clock. On the line C D, from any point —as say at E—draw the line E F, forming with E G an angle, which will be equal to the latitude of the place for which the sun-dial is intended. If the diallist possess a box or ivory rule, upon which what is called a "scale of hours" is marked, it will merely be necessary for him to set them off on E F, and draw hour-lines through them from G to the edge of the paper. In default of such an instrument, he may find those points in the following manner. From the centre of the line, E F, let him draw a perpendicular equal to half its length, as *h i*; and from *i* let him draw lines to E and F. Then, with the compasses, with *i* as a centre, draw the quadrant, *j k*, and divide this into six equal parts, and, through the points thus gained, draw lines from G to the edge of the paper, as before; these will give the hour-lines from 6 a.m. to 12 noon. Halves and quarters must be obtained in the same manner as the hours. The afternoon hours, from 12 to 6, may be obtained by simply folding the paper on the line A B, and pricking the points through which they may be drawn, as the two sides will correspond exactly. To obtain the early morning hours IIII. and V., and the evening hours VII. and VIII., we have merely to continue the VII. and VIII. morning and IIII. and V. afternoon lines through the point G to the opposite edge of the paper.

Generally speaking, for a horizontal dial a circular form is preferred; but before circumscribing the dial with a circular line or lines, it will be necessary to cut the paper into two pieces, through the line A B; these should be pinned down, with just so much space between them as will be equal to the thickness of the gnomon. Then take the compasses, and from about the middle of the paper strike a circle, within which figures indicating the hours may be marked, as shown in the diagram, and from this paper the necessary lines and figures may be traced off upon the actual dial, in which they should be accurately engraved.

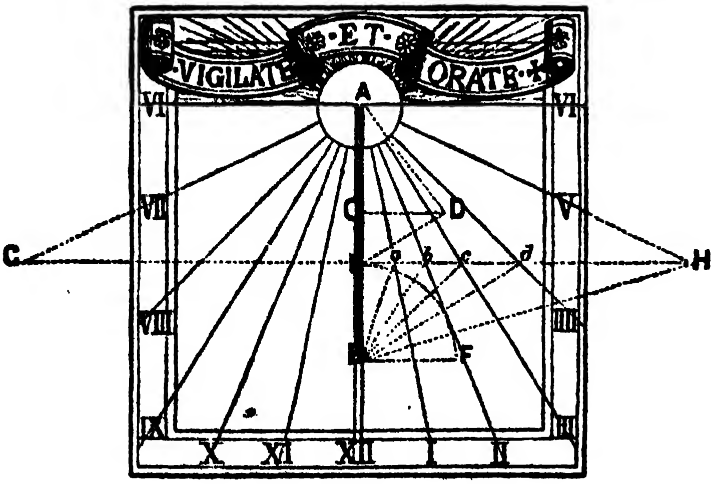


Fig. 3.

The gnomon must be of triangular shape (see Fig. 2), having the angle P—that which will project when the gnomon is fixed perpendicularly to the dial—equal to the angle E in Fig. 1, or, in other words, equal to as many degrees as the latitude of the place. In fixing the gnomon, the angle P, Fig. 2, will fall upon the point G, Fig. 1, and O upon the meridian line towards F, upon which line the angle Q will project. The line, P Q, or face of the gnomon, must always be left perfectly strong, as it is by the shadow thrown from this line that time will be indicated, but the under parts may be cut away in any ornamental form that may be preferred.

The top of the pedestal, &c., on which this dial is to

be placed must be perfectly horizontal; that it is so may be proved by a spirit-level, or by the mason's square and plummet, and, in setting the dial, care must be taken that the 12 o'clock line—that occupied by the gnomon—runs due north and south, which may be most easily adjusted by using the mariner's compass, or otherwise by fixing the dial on a sunny day, after first ascertaining from an almanack the difference, if any, between the sun and clock on that day, and making allowance accordingly.

Vertical South Dial. This may be made in the same manner as the horizontal one, by using, instead of an angle equal to the latitude, one equal to what is termed the complement of that angle—that is to say, the remainder of the degrees which would be necessary

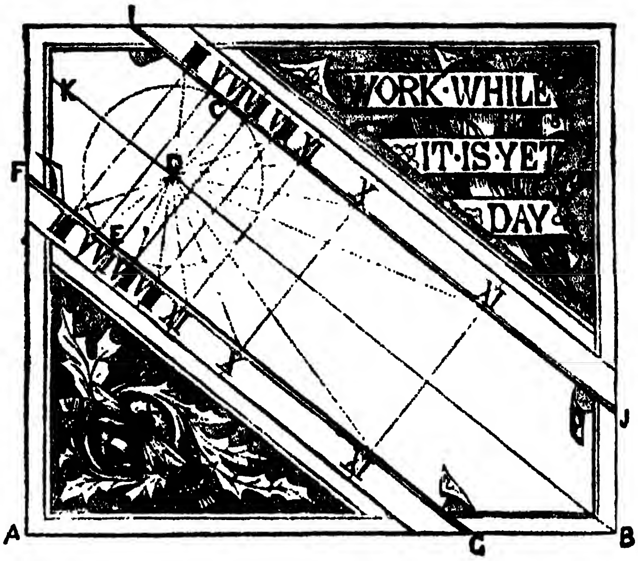


Fig. 5.

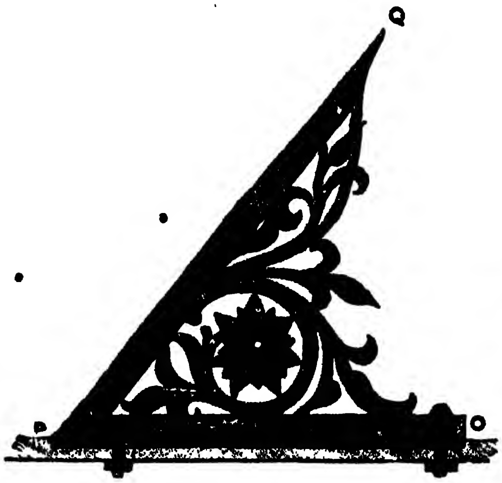


Fig 2.

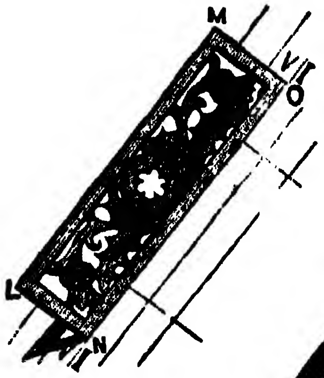


Fig 6.

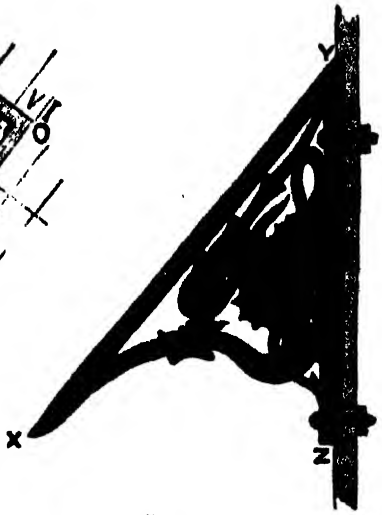


Fig. 4.

to make an angle of 90°. Thus, the latitude of London being 51½°, the complement would be 38½°. An angle of 38½° would, therefore, have to be used for setting off the hour-lines upon, and also for the gnomon of a vertical dial for the latitude of London. A more usual method is the following:—

As in the given instance, draw a meridian or 12 o'clock line, A B (Fig. 3), and taking an interval, as C, at pleasure, at C erect a perpendicular of indefinite length, as C D; make an angle, C A D, equal to the complement of the angle of the latitude, and draw a line, A D, meeting the perpendicular, C D, in D; then, at the point D, make the angle, C D E, also equal, as D is the complement of the angle of the latitude, and draw the line, D E, cutting the 12 o'clock line in E. Throu..a E draw the line G H, cutting the 12 o'clock line at right angles; take E B equal to E D, and with this radius draw a quarter-circle, E F. This must be divided into six equal parts, as in the horizontal dial, and through the points thus obtained lines must be drawn from B, cutting the line G H in *a*, *b*, *c*, *d*, and H; lines drawn from A through these last points to the edges of the paper, will give the hour-lines of one half of the dial, from which they may be transferred to the other half by folding and pricking. The gnomon, X Y Z (Fig. 4), will require to be made with the angle, Y, equal to the complement of the latitude; and when this gnomon is fixed perpendicular to the plane of the dial, the angle, Y, will be upon A, in Fig. 3, and Z will fall down the meridian line. Of course a space must be left, equal to the width of the gnomon, as in the construction of

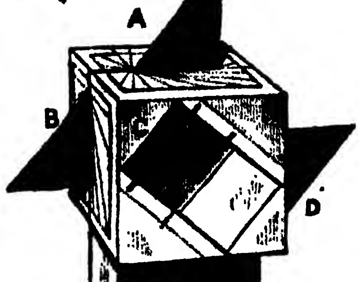


Fig 7.

the horizontal dial. In fixing this dial it must be placed due south, and perfectly upright, both as regards its plane and its meridian line.

A Vertical North Dial may easily be made from the foregoing, by taking a piece of paper, of the size of the intended dial, and placing it so that its bottom edge, representing the 6 o'clock line, should be on and coincide with the line VI. (A VI. of the vertical south dial). Produce the meridian line of the vertical south dial, and, through the point where it bisects the edge of the paper, continue the hour-lines V. and IIII. These will give respectively the evening hours VII. and VIII. on the north dial; and, as this dial tells only the hours from 4 to 6 a.m., and from 6 to 8 p.m., we have thus obtained the hour-lines of one half of the dial. This being transferred to

the other half in the manner before described, will give the points for the hours IV. and V. The paper may now be divided down the produced meridian line, and the hour-lines marked off on the material of which the dial is to be made, taking care to leave the proper space for the thickness of the gnomon. This gnomon must be of the same angle as that of the vertical south dial (see Fig. 4), but when fixed, must be reversed so that the angle Y shall fall upon the 6 o'clock line, and Z upon the produced meridian line. This dial must be placed perfectly upright, on a wall facing due north.

Vertical East Dial.—To construct this, at the bottom of a sheet of paper draw the horizontal line A B (Fig. 5); and to this join K B, making with it an angle, A B K, equal to the complement of the latitude of the town for which the dial is intended. Then, with any radius, as D E, describe a circle. Draw the lines, F G and I J, parallel to B K, and touching the circle in C and E. Then, through the centre, D, draw E C perpendicular to F G, by which means the circle will be divided into four quadrants, each of which should be subdivided into six equal parts. Then, from the centre, D, through these several divisions, draw the lines D IIII., D V., D VI., &c., and where these cut the lines F G and I J, draw the hour-lines IIII. IIII., V. V., VI. VI., VII. VII., &c., at right angles to B K.

The gnomon of this dial should be in shape a long parallelogram, L M N O (Fig. 6). In width it must be equal to the radius, D E, in Fig. 5, and of any convenient length; it is well, however, to make it, in this latter particular, somewhat longer than the diameter of the circle, C E, in the same figure. When fixed on the dial, the edge, N O, of the gnomon will fall on the 6 o'clock line, which must be made equal in breadth to the thickness of the gnomon, as in the foregoing examples, care being taken not to interfere with the straight line of the gnomon, L M, the shadow of which marks the hour. The gnomon may be perforated in any ornamental manner which may please the fancy of the amateur diallist.

This dial must be placed on a perpendicular wall, facing due east, the base line, A B, being kept perfectly horizontal.

Vertical West Dial.—This will be the exact converse of the latter, and will, when erected, as its name implies, face the west.

All these dials are sometimes met with in combination, drawn on the different faces of a cube of stone, as in Tardebigge churchyard, Worcestershire; and as this arrangement shows very clearly how the different gnomons are all set so that the edge whose shadow marks the hour is in all of them, no matter what their aspect may be, inclined at the same angle with the horizon, we give an illustration of it in Fig 7, wherein A is a south horizontal dial, B a south vertical, C an east, and D a north vertical dial, while, on the unseen face opposite to C, would be a west vertical dial.

Decoration of the Sun-dial.—In the horizontal dial it is the pedestal alone that can be made generally decorative, as the actual dial can only be seen from above. The pedestal, however, will always afford scope for the display of taste, if carving or modelling be employed, or a pretty pedestal may be cheaply formed of the rough stump of a tree, with creepers twined round it. And here we would suggest that a great mistake is frequently committed in making the pedestals of horizontal dials too high. A pedestal of not more than three and a half feet above the ground allows the time to be seen with much greater readiness, and is, therefore, better adapted for the purpose than the more lofty one. It must, of course, be placed in a position where it will not be rendered useless by the shadows of trees, shrubs, &c.

A vertical dial placed upon the front of a house may be made a conspicuous and highly-ornamental feature. Formerly much taste was bestowed upon the decoration of such sun-dials. Symbols emblematical of time are always appropriate. We have seen one, of which a mediæval ship (an emblem of the course of time) formed the base, the meridian line the mast, the hour lines the cordage; and, with our ancestors, appropriate mottoes, such as furnish food for wholesome reflections, were also favourite methods of decoration. We quote the following from old dials; they were generally in Latin, owing to its greater terseness. Thus, at Gloucester, we have, "*Pereunt et imputantur*" (They pass away, and are placed to our account); at Mickleton, "*Noli confidere nocti*" (Trust not to the night), which suggests the text, "The night cometh, when no man can work," which would, in itself, be a good motto, especially for a west dial, where it would form a sequel to that on Fig. 5; at the same place, "*Lex Dei lux diei*" (The law of God is the light of day); at Packwood, in Warwickshire, "*Orimur, morimur*" (We are born, we die); and at Rouen, one which puzzles some few tourists, "*Ultimam time*" (Fear the last hour); at Bridgend, "*Fugit irreparabile tempus*" (Irredeemable time flies away); and at Merthyr Mawr, a village near, is a dial with a motto of similar meaning, "*Transit hora sine mora;*" at Warwick, "*Vigilate et orate*" (Watch and pray); at Maidstone, "*Umbra sumus*" (We are a shadow); and in London was one which said to the idler, "Begone about your business."

HOUSEHOLD CHEMISTRY.—X.

ON DISINFECTING SUBSTANCES, AND HOW TO USE THEM.

DURING sickness, when so large an amount of organic matters is thrown off, that the ozone contained in the air of the sick room is unable to decompose them, other means, in addition to ventilation, must be employed to purify the atmosphere. This ought more especially to be done where the sick person is suffering from typhus or other infectious fever, the emanations from which may convey the complaint to other persons.

The practice of sprinkling perfumes about the sick room for the purpose of removing the closeness of the atmosphere, or any unpleasant smell that may be present, is useless in these cases. The perfumes serve only to disguise any unpleasant smell, and do not tend to make the atmosphere more healthy, nor to destroy any infection that may be present. The pastilles, also, so often burnt in sick rooms, act in the same way. They consist of various resinous and aromatic substances, such as benzoin, amber, styrax, olibanum, camphor, cascarilla, and other substances made up with gum water into the form of a cone. When ignited, they burn slowly, giving off smoke, more or less fragrant, depending on the substances of which they are made.

Burning dried lavender and brown paper is commonly employed for the same purpose, but they only serve to disguise one smell by substituting another. Sprinkling vinegar about the room, which may be often employed with advantage in sickness, serves only to cool the atmosphere of the apartment, and make it more refreshing, but does not destroy any gases or organic matters which may be present in the air. Before we can do this, we must employ substances that possess the power of combining with these poisonous gases, and by so doing, convert them into comparatively harmless compounds. The class of substances capable of doing this, are named "disinfectants." It must be remembered that the employment of these means to purify the atmosphere of rooms, must be conjoined with sufficient ventilation, free access of sunshine, and perfect cleanliness.

The most powerful and the most used of all disinfecting substances is chlorine. It may be employed either in the form of gas, or in combination with lime,

soda, or potash. The great power which chlorine possesses of decomposing noxious gases and organic principles in the atmosphere, is considered to be due to its great affinity to the hydrogen they contain. In this way it instantly decomposes sulphuretted hydrogen gas, by converting it into hydrochloric acid gas, the sulphur being liberated. When it meets with ammonia, it instantly converts it into water and nitrogen. Chlorine derives its name from the peculiar greenish colour it exhibits when examined by transmitted light. It is a gas of a very pungent and suffocating odour, exciting cough and difficulty of breathing. Chlorine gas is considerably heavier than atmospheric air; one hundred cubic inches weigh about seventy-six and a half grains, while the same quantity of atmospheric air is only thirty-one grains in weight. For this reason, when employing this gas for fumigation, it has been recommended that the material yielding it should be placed on a high shelf, that the chlorine, being heavier than the air, may fall, and thus become more diffused as it passes through it. For sanitary purposes, chlorine may be employed either in its gaseous form, or in combination with other substances, such as lime, soda, or potash.

Chloride of lime is prepared by exposing at a low temperature recently slaked lime (hydrate of lime) to the action of chlorine gas. In the form it is usually met with, chloride of lime may be regarded as a compound of chlorine gas with two atoms of hydrate of lime. Chloride of lime, when recently made, is a white powder, giving out an odour of chlorine, and absorbing moisture very slowly. But after being exposed to the atmosphere for some months, it is found to lose all the chlorine it contained, and to be converted into the carbonate of lime. Although commonly called the chloride of lime, it is considered to be, strictly speaking, a hypochlorite of lime, the lime being in combination with an acid formed of oxygen and chlorine. Although chloride of lime parts with its chlorine so readily to the atmosphere, yet it is found that the attraction of the chlorine for the lime is so great that it does not give it up, even when exposed to a degree of heat by which the lime itself is decomposed. In this case, oxygen gas is given out, while the chlorine still retains the calcium in the form of chloride of calcium.

During experiments that were made to ascertain the cause of this, it was found that when a solution of the chloride of lime was exposed to a current of atmospheric air, from which all the carbonic acid gas had been previously removed, that no change was produced in the chloride of lime, nor was any chlorine gas evolved; but when air containing carbonic acid gas was passed over chloride of lime, that substance was at once decomposed into the carbonate, and all the chlorine gas it contained was evolved; thus proving that when this substance is exposed to the atmosphere, the chlorine is expelled from the lime by the carbonic acid entering into union with it to form carbonate of lime. The same effect was produced by air that had been previously passed through putrid blood. So long as the air contained carbonic acid, the chloride of lime was converted into carbonate, and the air rendered perfectly free from any offensive smell; but when all the carbonic acid had been previously removed, the air retained its offensive smell, and the chloride of lime remained unaltered.

It is owing to the gradual manner in which chloride of lime yields its chlorine, and the readiness with which it absorbs carbonic acid, that this substance is so well fitted as a disinfectant for household use. The lime it contains, has also a powerful influence in purifying the atmosphere, possessing as it does the power of decomposing sulphuretted hydrogen and other products of the decomposition and putrefaction of organic matter, as well as of removing carbonic acid. This is well shown in the peculiar freshness of the air in rooms, the walls of which have been recently whitewashed with a solution of freshly slaked lime. When chloride of lime is mixed with water, a compound of one atom of chlorine and one of hydrate of lime is dissolved out, and another atom of the hydrate of lime is precipitated. A solution of chloride of lime for disinfecting purposes is prepared by adding one part of the chloride of lime to one hundred parts of cold water. The mixture is allowed to remain at rest, until all the insoluble hydrate of lime is deposited, and then the clear portion is to be poured off for use. Saucers or flat dishes containing the liquid, may then be placed in the room, the atmosphere of which we desire to purify. Another way of employing this solution is to hang up in the room clothes soaked in the solution. Sometimes the floor is sprinkled or washed over with this fluid, but as the lime is apt to rot the clothes and discolour the floor, a solution of the chloride of soda is preferable for the last-named purposes. This liquid which is known by the name of Labarraque's disinfecting liquid, is prepared by dissolving 2,800 grains of the crystallised carbonate of soda in about a pint and a quarter of water. Into this liquid is passed the chlorine gas yielded by the action of 967 grains of sulphuric acid, previously diluted with 750 grains of water on 750 grains of the black oxide of manganese, and 967 grains of chloride of sodium (common salt). What is known as *eau de javelle*, and is much used on the Continent for disinfecting purposes, consists of a solution of the chloride of potash, prepared in a similar way.

A solution of chloride of soda may likewise be obtained by acting on solution of common carbonate of soda (washing soda) with one of chloride of lime. When these liquids are mixed, decomposition ensues.

COOKERY.—LIX.

KITCHEN REQUISITES AND SUPERFLUITIES.

In many families, ordinarily quiet and simple in their style of living, there are occasions, not frequent perhaps, but recurring at stated intervals, when handsome and liberal dinners must be given. It is not enough to hire an extra and superior cook for a day or two. She must have more instruments to work with than are employed for the every day requirements of the household; and she will be found to derive great assistance from a furnace burning charcoal only. The furnace we have ourselves used is quite a small one, being thirty-four inches in height, nineteen in depth from back to front, and only forty-five in length. These dimensions are optional, and can be increased at pleasure, as well as the number of fireplaces and grates. An essential point is to have, at least, the oblong grate long enough to broil a fish the size of a mackerel, or to do *several* chops and steaks at a time.

Furnaces of this kind are built of solid brick, contiguous to the kitchen wall, or sometimes in an adjoining scullery. For neatness, their fronts and sides are covered with Dutch tiles, and their edges bound with iron. Underneath, there is room to place saucepans, a box of charcoal, and other sundries. When *not* in use, the top of the furnace may be covered with an unattached board exactly its own size; the furnace then serves as a table or dresser. When wanted for cooking, a little charcoal is introduced into the fireplace beneath the grate. It lights rapidly, gives no smoke (though there must be ventilation to carry off the carbonic acid gas arising from it; hence the advantage of fixing it in the scullery, while the disadvantage is that the cook has it not so completely under her hand), it does its work, and is soon put out again. During the course of a dinner, it will render astonishing service for sauces, side dishes, and all sorts of small things, when a multiplicity and succession of them are wanted.

For boiling, the cook must have her special utensils. She requires at least two fish-kettles, differing in shape:

one oblong, for long fish, as pike, cod, and ling; another short, oval, round, or lozenge-shaped, for turbot, John Dory, plaice, &c. There is the least waste of room, and consequently the least quantity of water is required in a fish-kettle of the last-named form. In fact, the Latin word *rhombus* means both the fish called a turbot, and a figure of four sides, like the diamonds on playing cards. A turbot-kettle, therefore, must be large enough to contain the whole fish, because it is held to be sacrilege to cut a turbot in two for the sake of cooking it more easily; at the same time a turbot-kettle should not contain a quart more water than is necessary. The greater the mass of water, the longer it is coming to boil; and even if a large kettle be filled with boiling water, it is more difficult to *keep boiling* than a smaller one.

A diamond-shaped fish-kettle is useful to boil long fish, either tied into a round, head and tail together, as a fine eel made to represent the emblem of eternity; or bound with a string (to be removed after cooking), into a serpentine form, like the attitude of a fish working its way against a stream, which makes a handsome appearance at table. A very convenient sized fish-kettle for ordinary use is one long enough to boil a very fine mackerel, and broad enough to receive a cod's head and shoulders.

All fish-kettles must have a perforated false bottom, on which the fish is laid to be plunged in the water, and by means of which it is lifted out when cooked. A lid is an unnecessary appendage to a fish-kettle, a waste of copper or of tinned iron, and gives needless trouble to the kitchen-maid to keep it clean. Boiling fish should be carefully skinned, and the cook ought to be able to *see it* while boiling, from first to last.

We may here mention that it is usual to put salt in the water in which fish is boiled, *because* boiling salt water is hotter than boiling fresh water; and the greater the heat applied, the firmer the curd and the albumen in the substance of the fish are set. Fish simmered below the ordinary boiling point is apt to become woolly and fall to pieces. The temperature of boiling water depends on two circumstances:—1st. The height above the level of the sea of the spot at which it boils: the higher we go, the sooner it boils—at the top of Mont Blanc boiling water is scarcely hot enough to cook potatoes. Few inhabited spots, however, are sufficiently elevated to make much difference in this respect. 2ndly. The more the water is charged with salts, the more heat it takes to make it boil. For this reason, some epicures boil fish which they wish to be firm, in water taken directly from the sea. Meat, on the contrary, is preferred as tender as possible; for broths and soups it is desirable to extract the greatest amount of its essences. Hence, for these, soft fresh water will be used, and even *that* will scarcely be made to reach its boiling point. In short, in boiling, if you want to keep the goodness *within* the article—as in vegetables, to be eaten as a dish, moderate sized fish, legs of mutton, breasts of veal, *young* fowls, and other meats served as "boils"—you must plunge them in boiling water with *some* salt in it (the quantity will depend on whether you use the boilings afterwards), and keep it boiling for some little time, if not throughout the whole process of cooking. If you want to get all the nutriment you can *out* of it, set it on the fire in soft cold water, river or rain water when to be had clean and free from sewage or soot, *without* salt (adding *that* when the cooking is quite or nearly done), simmering gently, and avoiding coming to a boil until the last minute. As pure soft water is a scarce commodity in many places, you may soften hard pump-water by dissolving in every gallon half an ounce of carbonate of soda.

Some articles, out of which you do *not* want to extract more of their goodness than you can help—hams and tongues, for instance; in short, all dried, smoked, and salted meats—must nevertheless be set on with the water cold, and simmered slowly for a long time before they are allowed to boil. The effect of which is to cause them to swell and become tender, giving out their superfluous salt while they retain their juices and flavour. Salt meat thrown into boiling water, and then kept galloping, will shrink and harden, and remain nearly as briny as it was before cooking. The cook who commits this vexatious blunder, will perhaps lay the fault on the butcher who "must have killed the bullock or the pig while the moon was on the wane, and therefore the meat was *sure* to shrink in the boiling." Salt and dried meats and fish should be steeped in water the previous night. The same rule applies to dried vegetables and grain, such as rice, peas, and haricots.

In boiling, the cook's chief care is skimming, as long as any scum rises; filling up with *hot* water to replace the liquid lost by evaporation—unless it be wished to *reduce* the quantity, as for jellies, consommé, and other soups; and attention that *nothing* sticks to the bottom of the boiler. For, as a little leaven leavens the whole mass, so a little bit of burnt spoils the whole mess.

Boilers again (of which there must be several of different sizes) depend on how they are to be heated. If to be set on a cooking stove, they may be made of sheet iron tinned; if over an open fire, they must be stouter in substance, of good hammered iron. In any case, the lid should fit neatly—just tight enough to be taken off without difficulty. A too loose lid allows excessive evaporation, and, if the fire draws badly, may admit smoke to flavour its contents. Other inconveniences are not worth mentioning, though there once flourished a French curé who invented a soup-boiler with a lid fastened by means of a padlock, to prevent his housekeeper from taking out the soup and supplying the vacancy with water. As necessary appendages to boilers, we must mention skimmers, ladles, cullenders, strainers, and sieves.

At least one deep saucepan should be fitted with a steamer at the top, which may be used or not, at pleasure. Steaming takes much longer than boiling, but it leaves all the natural juices in the meat so cooked, and avoids sloppiness in such things as vegetables, dumplings, puddings, &c. Steamed Norfolk dumplings, if well done, come out of the steamer light, plump, and clear, though boiled dumplings may be the original East Anglian fare. This, however, is an age of progress, and steamers are an accepted innovation. Preparations of eggs, all sorts of custards and many puddings, are exceedingly well done by steam. In steaming provisions, the water must boil fast, and a brisk fire be kept up all the while. Consequently, steamers will be generally adopted only in districts where fuel is cheap.

Earthen pots, with covers, of various sizes, are much used on the Continent for soups, broths, and stews, that take a long time to make, by extracting all the goodness from bones and other scraps. When once their bottom (necessarily thick) is thoroughly heated, it retains the heat for a long time. Hence their usefulness for simmering, and for keeping warm nourishment for invalids. They are invaluable for making beef-tea and the like over a mere handful of fire when not wanted in a hurry.

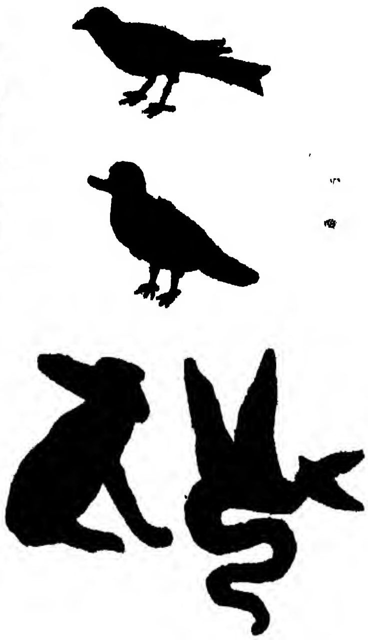
As the cook cannot always be looking at the clock, she will be helped in that by two egg-glasses, in one of which the sand runs out in three minutes and a half, in the other in five minutes; the reason for the difference will be stated hereafter.

Another wire utensil is a salad basket made of iron wire, tinned to prevent rust. Salad *may* be drained by shaking it about in a napkin—a slow process, which is apt, also, to bruise it. Good salad cannot be made with the water adhering to the leaves, the oil will not touch them. In a salad-basket the leaves will drain of themselves, if hung in the shade in a current of air, after giving them two or three swings backwards and forwards.

HOUSEHOLD DECORATIVE ART.—XXXVII.

ETRUSCO-EGYPTIAN FLOWER-POTS.

THE fashion, now so general, of using growing plants as ornaments for the dinner-table has led to the manufacture of various baskets and vases, some of silver and some of china, in which to place them so as to conceal the flower-pot in which they have been raised, and which would



be somewhat unsightly if left uncovered. By those who do not possess either silver or china vases, the Etrusco-Egyptian flower-pot, of which we give an illustration, will be found a simple and pretty substitute. A common flower-pot must be selected, of sufficient size to allow that in which the plant is growing to stand within it; and it is then painted with two or three coats of light red oil-paint, to be procured at any oil and colour shop. The material of which the flower-pot is composed being a porous one, it will absorb a good deal of paint; hence the necessity for giving it two or three coats of light red, each coat being allowed to dry thoroughly before the next is applied, a rather fine brush being used, so as to give as smooth a surface as possible to the work.

This being done and perfectly dry, some Egyptian designs, such as those given in the illustrations are painted upon the flower-pot, with a fine camel-hair brush, in ivory-black; but for this, the colour sold in tubes at an artist's colourman's should be used. The best way of doing it is to place the flower-pot on its side, with a heavy book on each side of it to keep it steady, and bringing it near the edge of the table, to use a painter's resting-stick to steady the hand, as the designs should be steadily and sharply done. They may be outlined in pencil or white chalk, to ensure precision and firmness in the painting. The saucer should also be ornamented in like manner. It is found that a larger design for the centre and smaller ones dotted over the plain ground, have a better effect than if subjects all of the same size be used, as they bear a closer resemblance to the vases which they are intended to imitate. Thus, in every flower-pot there should be one large design on each side, the rest being filled in with smaller ones.

Any illustrated work on Egypt will give a variety of figures and animals suitable for the purpose, when those we now publish have been copied. Should other colours and styles be preferred, they may be used for this purpose; thus, for instance, on a dark brown ground a bouquet of flowers, or a group of figures in bright colours would have a good effect. The plants may, of course, be grown in these flower-pots, but the frequent watering, and the constant dampness of the earth, in connection with the porous nature of the pots, is apt to cause the paint to peel off, therefore we advise their use as outer vases only. They form very pretty ornaments for the drawing-room, as well as for the dinner-table.

DIAMONDS ON WINDOW GLASS.—Dissolve a sufficient quantity of dextrine in a concentrated solution of sulphate of magnesia, sulphate of zinc, sulphate of copper, or any other salt; strain, paint over the panes quite thin, and let dry very slowly. Varnish with any alcoholic varnish.

USEFUL CEMENTS.

A VERY important point to be attended to in cementing is that the layer of cement between the two pieces we wish to join should be as thin as possible. This is best done by applying a thin coat to the surfaces of both the articles we wish to join, and then bringing them together as quickly and as firmly as possible. They should then be retained in position by string tied around them, or by india-rubber bands.

Where any small article is broken, it may be repaired with a gluten obtained from flour. A little flour is made into a paste with water, and then, being put into a muslin bag, is well kneaded under a stream of water from the tap of the house cistern. The water as it passes through the bag washes away all the starch, and leaves only the gluten. This cement, however, will not stand either heat or moisture. Flour is also used in the composition of the ordinary paste used for paper. The best paste is made by mixing gradually one tablespoonful of flour in half a pint of cold water, taking care to add the water by small portions at a time, and thoroughly mixing it with the flour before adding any more. This is to be slowly boiled, stirring it continually to prevent its caking at the bottom of the pan.

If it is desired to paste coloured pictures and fancy papers, the third part of a teaspoonful of powdered alum should be previously dissolved in the water. This prevents the paste from sinking through the paper. When it is wished to make the paste very strong, as for shoemaker's work, powdered rosin is also sprinkled into the saucepan while it is being made, and stirred up with it.

Occasionally, where it is wished that the paste should adhere very strongly, glue and sugar are added. This paste is adapted for the purpose of pasting down cloth, leather, and similar substances. As it is often convenient to have a paste by us that will not turn mouldy, and is always ready for use, this result may be obtained by adding some sugar and a little corrosive sublimate; but owing to the corrosive sublimate being so very poisonous, paste made in this way must be cautiously kept out of the reach of children. If this paste becomes too dry in hot weather, it may be readily softened and made fit for use by adding some hot water to it.

A cement similar to the above, but much superior to it in every respect, may be made from ground rice. It is known by the name of the Japanese cement, being used in that country, not only for the purpose of pasting thick sheets of paper together to make trays, boxes, and other fancy articles, but also by making it with so little water that it has the consistence of clay, constructing out of it various solid trays. These when they are dry are white, nearly transparent, and bear a high degree of polish. They are also very durable. It is even said that "the Japanese make quadrille fish that so nearly resemble mother-of-pearl, that the officers of our East Indiamen are often imposed on." Japanese cement is prepared by boiling a mixture of ground rice in cold water—the rice must be thoroughly mixed with the water previously to applying the heat to it. This cement is useful for pasting paper together, and it is so strong that the paper united by it will sooner tear than separate. It is especially serviceable for use with thin tissue paper.

A superior kind of colourless glue for using with paper may be made by slowly boiling one pound of parchment cuttings in six quarts of water until the fluid is reduced to one quart. Then strain off the liquid, and evaporate it down to the proper consistence for use.

A thick mucilage of gum arabic in water forms a useful cement, but it has the disadvantage of contracting when dry, to prevent which, sugar and starch are sometimes added. It is then known under the name of French cement. The best form is that which was employed by the late Dr. Buckland for fastening paper labels to specimens. It is directed to be made of one part white sugar, three parts of white starch, and four parts of gum arabic. All the substances to be in fine powder, and to be weighed. After the powders are well mixed in a mortar, water is to be gradually added, the rubbing being continued until it assumes the proper consistence. The cement is then to be poured into a wide-mouthed bottle, and preserved for use. It must be kept carefully corked, as it soon dries, especially in warm weather. This cement is also used by artificial flower makers, and by confectioners, for any purposes of their trade for which they require cement.

We must now consider the subject of cements that are at once transparent and capable of resisting the action of water, and by means of which jewels, china, glass, and articles of that kind may be repaired. When the article we wish to repair will bear heat, such as a broken precious stone, gum mastic alone will be sufficient for the purpose. This is the method employed by jewellers when they wish to repair a fractured gem. The two pieces are made hot, mastic is applied to each surface, and they are then pressed into contact as tightly as possible, and kept so until cold. When this is carefully done, with only a thin layer of the mastic between the stones, the fracture can scarcely be discovered. It is said that by this means, "cameos of white enamel or coloured glass are often joined to a real stone as a ground to produce the appearance of an onyx. Mastic is also used to cement false backs or doublets to stones to alter their hue." Mastic varnish (gum mastic dissolved in rectified spirits of wine) is also sometimes employed for the same purpose.

A very good cement for joining china, glass, or any other substance, may be made by boiling one ounce of isinglass in six ounces of water, boiling it down to three ounces, and then adding one ounce and a half of strong spirits of wine. Let the mixture boil for a few minutes, and then, while hot, add half an ounce of the milky emulsion of gum ammoniacum, and then five drachms of a saturated solution of mastic in methylated spirits of wine. Another cement of the same kind may made by adding two parts by measure of the above solution of isinglass to one part of thick mastic varnish.

The very powerful cement that is employed by the jewellers in Armenia to fasten gems to the outside of watch-cases, and similar purposes, is thus made:—Soak isinglass in water until it swells and becomes soft, then dissolve it in spirit, with two small pieces either of gum galbanum or gum ammoniacum. Then five or six pieces of mastic about the size of peas are placed in as much spirits of wine as will dissolve them. The two fluids are mixed together, and a gentle heat applied. While warm, the cement is to be poured into a well-stoppered bottle, and closely corked. Whenever it may be required for use the bottle containing it should be placed in warm water, so as to render the cement fluid.

It is useful to know how to fasten the brass letters on the plate glass in shop windows. They are cemented on with the following composition:—Copal varnish, fifteen parts; drying-oil, five parts; turpentine, two parts; liquefied glue, made with a very small quantity of water, five parts: these are to be melted together in a water bath, and ten parts of quicklime added and thoroughly mixed with it. The lime for this purpose must be recently burnt, and in a state of very fine powder. White of egg made into a paste with recently burnt quicklime, forms an excellent cement for repairing any broken china images, pieces of spar or marble ornaments that are not exposed to the action of water; and in cases where the white colour of the cement is not objectionable, it forms a very strong cement.

Broken plaster casts can be best repaired with plaster of Paris. This should be of good quality, and recently

burnt. A sufficient quantity is then to be put into a tea-cup and mixed with water, so as to form a thick cream. The broken surfaces should be slightly moistened with water before the liquid is applied. Fractured pieces of alabaster are also mended in the same way.

A very superior cement for joining wood may be made by soaking isinglass or gelatine in water until it swells. The water should then be drained off, and spirit poured on it, and the vessel placed in a pan of hot water until the isinglass is dissolved. This cement must then be kept in a well stoppered bottle.

Common glue may be made waterproof, and its tenacity improved by soaking it in water until it swells, and then exposing it to heat in sufficient linseed to cover it until it is dissolved. The following composition is excellent for rendering waterproof the joints of casks and water cisterns, and dries in forty-eight hours. It consists of eight parts glue of the consistence used by carpenters, with four parts linseed oil which has been previously boiled with litharge for a long time, to render it drying. Four parts of glue made ready for use with one of Venice turpentine have the power of cementing glass, wood, or metals to each other.

The best cement for fixing hones for sharpening knives is made by melting common glue with half its weight of rosin, and a little redlead. Shellac, either by itself or in combination with other substances, forms a cement that dries rapidly, and makes a very strong union.

What is commonly known under the name of liquid glue is prepared by dissolving four ounces of orange shellac in three ounces of rectified methylated spirits of wine. These substances are corked, bottled, and kept in a warm place until dissolved. It is said that this formula produces a cement so strong "that pieces of wood may be joined together, cut slopingly across the grain, and afterwards resist every attempt to break them at the same place. In many of the islands of the Indian Ocean, in Japan, China, and the East Indies, a similar cement is used to join pieces of wood for lances, bows, &c. The fluid is thinly smeared over each face of the joint, a piece of very thin gauze interposed, and the whole pressed tightly together, and maintained so until the next day. Joints so made will bear even the continued flexure of a bow without breaking. It is admirably adapted for fishing-rods."

Glue may be kept from cracking by adding to it a very little glycerine, as may also gum arabic; and a trace of carbolic acid will keep either from decomposing. If some bi-chromate of potash be added to glue, when exposed to the light it becomes perfectly insoluble in water, and is thus useful for making prisms or mending breakages.

Caoutchouc, or, as it is more commonly called, india-rubber, is also employed as the basis of many cements. A solution of one part caoutchouc in three parts of chloroform, to which one part of powdered mastic is afterwards added, forms a valuable cement, which is elastic, transparent, and useful for many purposes. An exceedingly strong elastic waterproof cement, which is similar in its nature to marine glue, is formed by dissolving one part of caoutchouc in four parts of coal tar, and afterwards adding two parts of shellac and applying heat to the mixture in an iron vessel. Another cement of a similar kind is made by pouring eight parts of the sulphurate of carbon on one part of caoutchouc and three of gutta-percha in a stoppered wide-mouthed glass bottle, and placing the vessel in hot water until the contents are dissolved. This substance requires to be gently warmed before it can be employed. Another cement useful for joining leather is made from gutta-percha, sixteen parts; caoutchouc, four parts; shellac, one part; to be boiled together in two parts of linseed oil, and applied hot to the materials we wish to join.

A cheap cement, by the aid of which broken articles of all kinds may be repaired, but which requires some weeks to harden, is made by mixing into a paste white-lead and linseed oil varnish. When we wish to join stone and iron, a mixture of equal portions of sulphur and pitch will be found to answer the purpose. As it is sometimes useful to know how to reunite a broken stone, such as a doorstep, the following receipt may be of service:—Twenty parts of clear river sand, two parts of litharge, and one of quicklime made into a thin paste with linseed oil. After the compound has been applied for some time it will be found to harden to the consistence of stone. A fractured stone may also be repaired by a mixture of litharge, redlead, and whitelead, made into a paste with boiled linseed oil.

The following is a good cement for fractured iron, for in time it will re-unite the separate portions into one mass. It consists of thirty-six parts of iron filings, rubbed together in a mortar with one of powdered sulphur and two of sal ammoniac. This powder is then to be wetted with water and applied to the broken place.

A good cement for fastening loose knives and forks in their handles is made by melting together four parts of rosin, one of bees'-wax, and one of brickdust. A good cement for rendering the walls of buildings waterproof may be made by boiling linseed oil with litharge, and afterwards making it of a proper consistence with pipe-clay, a little turpentine being afterwards added. If it should be thought desirable, this cement may be coloured with powdered brickdust.

A cement for making the mouths of preserve bottles air-tight, will often be found useful. It consists of yellow wax, four parts; turpentine, two parts; Venetian red, one part, melted together and applied warm. Another cement for the same purpose is made by melting five pounds of rosin, one pound of bees'-wax, and then adding two table-spoonfuls of plaster of Paris, and one pound of ochre, both being well dried, and then mix them well together with a quarter of a pound of linseed oil.

Elastic cement, for making articles waterproof, may be made by dissolving one part of caoutchouc, cut into small pieces, in three parts of chloroform. Another of a similar kind consists of a solution of caoutchouc in six parts of alcohol, and one hundred of sulphide of carbon.

In making fountains for gardens it is sometimes useful to have a cement that will harden under water. Such a cement may be made by mixing oxide of iron, clay, and linseed oil into a stiff paste. A cement used by plumbers is made of black rosin, one part; brickdust, two parts; melted together and well mixed.

The following cement may be useful for filling up cracks in mahogany furniture. It is made by adding one part of Indian red, and a little yellow ochre to make the tint match that of the wood for which we require it, to four parts of melted bees'-wax. Common putty, coloured by the same materials, also answers the purpose for common work. A cement that is useful to prevent the escape of steam from steam-pipes, consists of flour and water mixed up with white of egg, smeared on linen, and applied round the joint. Powdered quicklime, made into a paste with bullock's blood, is also employed by coppersmiths for the purpose of making the joints of copper secure and preventing any leakage from the taps.

Four ounces of rosin, a quarter of an ounce of wax, four ounces of whitening, made previously red hot, make a good cement for attaching glass to metal or wood. It is used by opticians for fastening their glass lenses to handles while being ground. Another cement of the same kind is made by adding wood ashes to melted pitch. A mixture of rosin and bees'-wax may also be used for the same purpose. In these, where the cement is exposed to vibration, it is wished for it to be very tough; it is customary to mix tow with it, the fibres of which serve to hold it together.

A good cement for joining together the glass plates of which aquariums are composed may be thus made:—Apply heat to caoutchouc until it becomes viscid and fumes. This is then to be mixed with half its weight of slaked quicklime in powder, and the same quantity of redlead.

DOMESTIC MEDICINE.—XXXIX.

INSANITY (*continued from p. 163*).

The Causes of Insanity.—We need not describe at more length the different forms of insanity. It is to more purpose to inquire into the causes of it. We shall not follow any severe order of statement in trying to explain the causes of insanity. We shall endeavour mainly to enumerate the influences which have appeared to operate in disturbing the mental balance of human beings.

1. *Civilisation.*—It is a fine point to determine how far civilisation favours the occurrence of insanity. There is a difference of opinion as to whether more people are insane now than used to be. It is extremely probable that insanity is a little more common than it was formerly; but only a little. There are a great many more inmates of asylums. This does not show a corresponding increase in the number of insane people; but only that a wise and humane legislation takes more care of them, and gathers them into institutions specially fitted for their treatment. Not only are the insane sent to asylums in larger numbers than formerly, but they live longer, and so tend to swell the returns of the insane. The increase in the proportionate number of insane to healthy people is thus more apparent than real. The actual increase is only slight. We should rather expect that a state of civilisation would favour the occurrence of insanity. The lower animals appear to be either free from insanity or little affected with it. The barbarous races also enjoy a similar freedom. The mind in civilised nations is more sensitive; the human being is placed in more delicate and complicated relations with other human beings; new passions and cares are experienced. And all this involves a greater liability to insanity. Among nations that are civilised, there is a struggle for life in close, confined atmospheres, which is sometimes vulgar enough. But there is more—there is a refined struggle for more than life, for wealth and place in society, which is trying often to the mind and the feelings, if it fails, and sometimes even when the struggle succeeds. Civilisation means general progress and development of the higher human faculties. But we must admit that this implies some risks of disease and insanity in individuals.

2. *Excesses.*—The second cause of insanity, which must be clearly stated, is *the excessive gratification of appetites and passions.* Drunkenness is a powerful cause of insanity. Nearly all the medical officers of asylums testify that drinking in excess has been one of the causes of insanity in a large number of the cases. We cannot too strongly insist upon this point. All people who are excitable, or in whose family there is any tendency to nervous diseases of any kind, should be on the look-out against the least growth in their liking for wines, beer, or spirits. Other forms of excess in the indulgence of appetites will readily suggest themselves.

3. *Excessive Love of Wealth* and intense and anxious pursuit of wealth is bad for the mind. "Perhaps one, and certainly not the least, of the ill effects which spring from some of the conditions of our present civilisation," says Dr. Maudsley, "is seen in the general dread and disdain of poverty; in the eager passion to become rich. The practical gospel of the age, testified everywhere by faith and works, is that of money-getting; men are estimated mainly by the amount of their wealth, take social rank accordingly, and consequently lend all their energies to acquire that which gains them esteem and influence."

There is too much truth in this, and men should moderate the love of money, and know that "a man's life consists not in the abundance of the *things* which he possesses." There are two ways of being rich—one is by having the means of procuring a great many things, the other is by needing very few things. "How many things there are which I do not want," said Socrates. A little with contentment is better than much gained by great speculation or little pettifogging ways.

4. *Incorrect Views of Religion* tend to produce insanity. We wish that our space had allowed us more fully to enlarge upon this point. Is it not lamentable that many a mind should be driven into gloom and actual madness by misunderstanding that religion whose motto is "Peace on earth and good will among men?" There are two great religious errors which have depressed men into madness. One is that God is a very angry being who will not forgive sins. The fact being that God is more forgiving than any of His creatures, and that He is constantly urging upon men to accept His forgiveness and His favour. The second error is that, according to some schools of religion, men are set upon too much self-examination, as if this were a healthy or profitable employment. We cannot too honestly study to know ourselves. But we should also look out of ourselves up to greater and better models, and aim at being like them. When self-examination is carried too far, it does harm in various ways—perhaps by excessive self-condemnation for not coming up to a supposed standard, perhaps by hypocritical pretensions to a certain unnatural sanctimoniousness. A sound religion is eminently conducive to that peace and tranquillity of the mind which favour sanity and sobriety—it makes prosperity safe by teaching its dependence on God and on the doing of that which is right and true; and it makes adversity bearable by pointing out that it is temporary and if patiently and piously borne, will "work out good."

Lastly, we have to say, that in a certain number of cases *a tendency to insanity* is inherited. The proportion of cases in which hereditary influence can be traced is variably stated by different authors. But a certain temperament or constitution is, in some cases, inherited favourable to the action of the other causes of insanity which we have specified. It will be observed that only the tendency is inherited, and it may be very slightly so. Considering that in many cases insanity occurs without hereditary influence being traceable, and that in other cases where its hereditary tendency exists the disease never occurs, we ought to think chiefly of the wise regulation of our own lives and habits—to "live soberly, righteously, and godly"—and the probability is that we shall enjoy throughout life the *mens sana in corpore sano*—the healthy mind in a healthy body.

Treatment.—Of course, we do not enter here into the treatment of insanity when it occurs. Thanks to Conolly and other physicians, insanity now-a-days is treated very humanely. In good asylums, straight waistcoats and such means of restraint are unknown. Usually patients are watched by attendants; the bodily powers are well sustained; and the insane patient is treated *medically* on the view that he is labouring under a physical disease of the nervous system, which requires special treatment, just as typhus fever and inflammation of the lungs require their treatment. There is sometimes a repugnance manifested by the friends of persons who exhibit symptoms of delusion or monomania to permitting them to be placed in properly regulated asylums. But the more we accept the true explanation of insanity—that it is a disease—the more ready we ought to be to obtain for our suffering friends the facilities for proper treatment, which our more completely furnished and systematically ordered establishments afford, an early resort to which will very often speedily restore the sufferer to society.

TOILETTE TABLE DECORATION.

AFTER having arranged for the comfort of the parlour and the proper furnishing of the drawing-room, nothing adds more to the credit of a young housekeeper, in the matter of adjuncts, than a pretty bedroom. Of course we presume that she has already procured what is wanted for actual comfort. She may adorn her own room, or keep an ornamental spare room in which to usher her visitors. In houses where the rooms are *rather small*, it is better to have only necessaries in the chambers in use; the same axiom applies when sufficient servants are not kept. In both cases an ornamental spare room is the best management. When rooms are large, and a little extra trouble in dusting can be afforded, we commend an inviting appearance by all means, and the assumption of pretty knick-knacks in the lady's own chamber. It need not preclude the equal adornment of the spare bedroom. Having draped the toilette table with white muslin over a coloured slip, set a handsome glass upon it. Toilette glasses are frequently covered with muslin, festooned with bows of ribbon. If the frame of the glass is old or inferior, such an ornament performs a double duty. Placed on the table, surrounding the glass, a pretty toilette set will give the desired finish to the arrangements. A comb and brush tray is very desirable, but is not always to be secured. It is laid on the glass, on the flat mahogany stand. A mat of crochet or some other fancy work should be placed between the stand and the tray, to prevent the polish of the mahogany from being disturbed. In arranging such a set as our cut illustrates, place the central vase before the glass; a candlestick at either side of the glass towards the back; a scent-bottle in advance of each, and much as they are placed in the illustration. On each side of the vase place the small stands, and at the front corners of the table a pair of pincushions alike. The small stands are for violet-powder and pomade. A little ring or pin tray may be placed just before the large vase. When there is no central vase, a single large pincushion should occupy the post of honour—the centre of the table towards the front. The large vase should hold *pot-pourri* or dried rose-leaves and lavender moistened with eau-de-Cologne. Place wax candles in the candlesticks.

TOILETTE ORNAMENTS.

The present illustration (drawn from a set kindly lent by Mr. Rimmel) is of white opal china, edged with gold, and decorated with garlands of coloured flowers and leaves. Another beautiful set worthy of notice is of pale green opaque glass with a Greek border of gold and claret colour.

The entire success of such ornaments depends on the colour selected. The use of white, and white wax candles is always safe, although often less effective than colours. When a room is furnished with blue, choose blue ornaments, or white ornaments with blue. If the ornaments are white, let the candles be blue, and *vice versa*. When a bedroom is furnished with red or pink, let the ornaments be pale green, and the candles scarlet or white. If the room is furnished with green, and if the ornaments are pink, let the candles be pale green; or if the ornaments are white, or white with pink flowers, use scarlet candles. A bedroom is rarely decorated with yellow, but should it be so, let the toilette service be yellow, or white and gold or mauve. In either case use yellow candles, unless you can *exactly* match the mauve in colour with the candles. A pretty mat under each china article on the toilette table is an improvement. The mats should be all alike, and of the same colour as the candles. With white furniture any colour may be used, but not *two* colours, unless thus:—Bedroom furniture white, toilette ornaments blue, mats scarlet; or ornaments green, mats deep crimson or ornaments pink, mats deep green. White ornaments suit any furniture. Then let the mats and candles correspond with the coloured decorations of the chamber. No wax candles are more effective than scarlet in a bedroom, whenever they can be introduced. And white ornaments with these are better than pink ornaments with green drapery. White ornaments and scarlet candles will generally look well in juxtaposition with blue, and may often be used where there is pink or crimson furniture.

Ornamental bed and watch pockets, if introduced, must be of colours similar either to the furniture or the knick-knacks; and whatever is introduced for use or ornament should also be governed by the same rule.

The china washstand service must be of the colour of the hangings.

THE HORSE.—XI.

THE GROOMING AND CONDITION OF THE HORSE.

As a necessary adjunct to the stable, we must now say a few words on the groom, and, as is the case with the horse himself, the services required must in a great measure determine the price you have to pay for him. It is well to remember that the most expensive is not invariably the best; neither is a good character from his last place an invariable criterion that he will be equally good in your service. We will suppose, for instance, a man may have lived with an old gentleman or lady, whose daily drive extended to about five miles out and home, and occupied from two hours and a half to three hours. The man has kept his horses (for we will suppose two under his hands) in good condition without an inordinate bill from the corn merchant, been steady, civil, and obliging. Take him into your service to look after a couple of horses that have to do real work—business journeys of twenty miles a day once or twice a week, and to give you an occasional gallop with the hounds, and the possibility is that you will find him worse than useless, and the horses rapidly declining in condition.

If you are a novice—and for such we write—a helper from a hunting stable, who is hardly fitted to aspire to a

thorough groom's place, is the most likely man to answer your purpose, and he should look after a couple of horses and a carriage well, or three horses, provided you do not want him to do more than exercise them. Such a man, if he knows his business, is not dear at a pound a week; but if you know little or nothing yourself, he will be your master instead of your being his. It is an unpleasant alternative, but you had better bear it until you know from *experience* something of stable management. When you do, a sharp lad, at a little more than half the money, will answer the purpose quite as well. One thing to be insisted on is that everything shall be done thoroughly, and done at the proper time, never by any chance passing over any dereliction of duty. The groom should be at stable from six o'clock to half-past, according to the time of year. He will feed his horses at once, and if they have not always water by them give them some, or if kept, as it should be, at all times for their free access, give it to those whose buckets or troughs are empty, unless they are to be worked at once. In that case he may offer them a few "go-downs," but not allow them to fill themselves; there is little danger of that, however, with those that have it always at command, and the chance is they will only wet their lips. This done, he will sponge any stains of dirt off from their hocks, quarters, or other parts that may be soiled, and proceed at once to the task of "mucking out." This, where straw is bought, must be done with care, as, although no soiled or dirty litter must on any account remain, it is of importance that he should not waste a particle of such as is fit to go again under the horses. All this will be moved forward under the manger, and the floor thoroughly cleansed with a stiff broom. It is important to ascertain occasionally that this is well attended to, or a coating of short foul straw will accumulate on the stones, retain the moisture, and by the effluvia it generates prove very hurtful to the health of the horse, besides affecting his eyes. This done, if needful he will go to exercise (but that is not often necessary in a stud of not more than two), and while he does so, it is well to leave the litter heaped under the manger, with the windows and doors open, that the floors may become dry. After exercise, or at once if that is omitted, he will thoroughly clean or dress his horses, and tack up the heads of such as are wanted for use within an hour or two. At twelve o'clock he will feed again, also at four; at seven wisp over, prepare for the night feed, give hay, and see that the water troughs are filled up.

With a small stud, and only one hand, we think it better that, if a horse has to be exercised, it should be done towards the middle of the day, while the other is at work. And in this case, with two used on alternate days, an hour's exercise at a foot-pace, just to stretch the legs, will be ample. If loose boxes are used, leading in hand for a shorter time will be sufficient, and is on the whole preferable to riding, as few men can be depended on to keep at a foot-pace.

Where horses are hard worked, it is well to pay your visits to them at stable hours, so as to cause as little interruption as possible. They soon habituate themselves to these, and on being shut up will stretch out for a slumber for an hour or two, which it is cruel to disturb; but when the stable is open, remember, if you can pay no more than a flying visit, that if "the master's eye fattens the ox," it equally conduces to the condition of the horse.

Many grooms will try to induce you to allow them to buy the hay and corn. This, in a large establishment with a thoroughly trustworthy man at the head of it, is all very well, because, if you can trust him with a number of valuable horses, you may well trust him to buy their food; but it is no reason why men who in reality are mere strappers should possess such a privilege, and on no account should it be allowed. Go to a respectable corn merchant, unless you are judge enough and have time to buy for yourself, and tell him to send you the best corn he can buy. It is always cheapest in the end, and remember when the bill comes in that, if you have horses of ordinary size, two bushels to each a week is a fair average. Some may want a little more, some scarcely so much; but, taking an average of horses in ordinary work, that amount of corn and from eighty-five to ninety pounds of hay is what ought to be consumed. Of bran and beans, as they are used more medicinally than for general food, you must use your own judgment, and we shall touch more on this when we come to the subject of condition. Having previously mentioned food, we should have passed it here, but for the fact that some horses, by the groom's account, are supposed to eat an inordinate quantity. When such is the case, it is well to see that they have it. With the bills checked weekly, if the horses do well at the quantity named there can be but little underhand work. One other caution, and we have done with the *genus* groom: never look over a case of drunkenness while out with or in charge of horses.

Having disposed of the groom, it behoves us to consider that qualification in the horse with which he is principally identified—viz., *condition*. This word, so suggestive to the ears of every horseman, may need explanation for the tyro, and we can best define it as "having every horse in the most fit state of health to do the work required of him." Thus we find that hunting condition and racing condition, although but slightly different, still are different; while widely different from either is what is technically termed "dealer's condition," which is nearly the state that those ambitious of obtaining show yard honours for their pets should endeavour to arrive at, while it is evident to all that the harness or draught horse is not required to be "so fit" as those used for faster work. Of course, knowing for what purpose you intend to use your horse, you must regulate his diet and exercise accordingly. At the same time we may lay down some general rules that will be of service to our readers in any case.

First and foremost, do not suppose that a horse taken up from grass can at once be put into fast work without detriment both to his legs and constitution. If very poor, he will require rest and good hard keep, given gradually and in moderation, to bring up his strength. If full of flesh, a mild dose of physic is to be recommended ere anything is done with him. After that is set, he may without harm be ridden for an hour or so daily at a foot-pace, but on no account faster. This is necessary from the fact of the sinews having for a long time been unused to carry weight, and in consequence more liable to injury from unusual exertion. Lameness often results from neglect of this caution; but, even if that is escaped, the legs are nearly certain to fill for several months, if the horse is used at a quick pace before they become hardened. At least a month should elapse after his being taken up before you can commence to trot him, and it is more than probable that another mild dose of physic will be necessary. This should be given at the end of three weeks, and the horse kept walking for a few days after it has set. Gentle trotting will then do him no harm, and by degrees you may get gradually to the pace at which you wish to use him. For ordinary hacking or harness he will be fit in about two months from leaving the grass field; but neither for very long journeys, quick work, nor hunting, under at least double that time, so that when we hear a man, on selling a horse, say his condition is worth half the money, it is by no means certain that there is not some truth in what he says, as it is certainly an advantage to have one that you can work at once.

Dealer's condition is also to be regarded with a jealous eye, as, although he may have been ridden just enough to keep him quiet and fit for a purchaser to mount, if long

in the dealer's stables you may be certain that he is not hard, and in all probability he will be loaded with such an amount of inside fat as to ensure an attack of inflammation, were he used for a long journey, with probably broken wind or something of that sort to follow, however sleek and well he may look in his coat. Flesh hides many faults; and to obtain that and a bloom on the skin, while getting down any windgalls or other enlargements on the legs and joints, is the dealer's object. Physic, long, slow work, and hard keep for a month or six weeks are the remedies for this state, although, of course, if you only want a gentle airing, either in saddle or harness, the horse from a dealer's stables may do it at once.

We will suppose that the horse is in a fit state to do a fair day's work; then the object will be to keep him thereat. In the autumn and winter of course you will not suffer him to work in a long coat, and, whether you clip or singe, the coat should be kept down as close as possible. After it has once been got close, a slight application of the singeing-lamp once a week will keep it so without trouble. By this means no unnecessary sweat will be given off, and the animal can be used at a quicker pace than when it is neglected. Nothing, perhaps, affects condition more than the treatment of a horse after hard work, and our own plan, either with hunters or hacks, was on coming home to wash them from head to heel with water just off the chill. Some use it quite cold, and in the summer it may be very well, but we cannot recommend it at any other time. The horse can be washed and thoroughly scraped (a necessary precaution, or he will not dry well) in a quarter of an hour, and then warmly clothed and left to himself with a nice linseed mash in the manger until it is time to shut up for the night. As a rule, he will dry in a few minutes after being clothed, where his coat is kept short; and with a little attention to his ears (which should always be got dry and warm ere he is left) and any other spots that may not have quite dried off, he will be comfortable, and nothing further needed until he is dressed in the usual way next morning.

We are quite aware that with many of the old school these opinions will be held heterodox and as tending to make lazy men, but we ask them, Which is better for the horse, to be clean, dry, and comfortable in half an hour, as is possible when properly washed, or to have a man worrying him for an hour or more with straw, comb, and brush to achieve the same result? Any one who has seen the irritation caused to a thin-skinned horse during the process can have but one opinion on the subject. It is, in fact, another hour added to his day's work, and even then he is seldom got so thoroughly free from dirt as by washing. For horses accustomed to break out in after-sweats in the stable, washing is almost a certain cure; in fact, it was through one of this sort that we were brought to recognise its benefits. She was used for harness, and was of a very irritable and perhaps rather vicious temper, so tetchy, in fact, that she could scarcely be touched without having recourse either to her teeth or heels. The consequence was, the longer she was dressed after a journey the wetter she became, and she would break out frequently during the evening, so that at times she has been shut up wet as she was, from sheer inability to get her dry. A person to whom we were speaking about her advised washing. We tried it with the most beneficial results, and from that time had no more trouble with her. This, by the way, reminds us that horses at all queer-tempered should be dressed with their heads turned on the pillar reins. It will not only save the man the chance of a savage bite, but prevent their learning to crib bite—a trick which is frequently picked up from catching at the manger while being dressed.

In our next we shall continue the important subject of condition, and notice some of those minor ailments which so often throw the horse out of it, but which, on the old principle of a "stitch in time saving nine," are easily removed before they have attained head by a little care and watchfulness.

DOMESTIC MEDICINE.—XLI.

LEAD POISONING.

It often happens that people get insidiously poisoned with lead. This unpleasant accident used to happen oftener in some parts of the country, especially among the cider-drinking inhabitants of Devonshire. Up to and beyond the middle of the last century, in Devonshire a peculiar colic used to be very prevalent. We find it noted in medical records, based on observations carefully compiled and preserved, that in a period of less than five years, ending with 1767, 285 cases were received into the Devon and Exeter Hospital alone, and so severe, that of these only about three-fourths were cured. The disease was too well known to everybody in Devonshire, and scarcely known elsewhere. It was known to be connected with cider-drinking, but what element in the cider produced the colic was not known till Sir George Baker investigated the matter, and demonstrated that the symptoms were due to *lead* contained in the cider. The cider became contaminated with lead by employing lead about the cider presses, or for the storage, or conveyance of the apple juice during the manufacture. Quite lately some publicans in town suffered from symptoms of lead poisoning, which were proved to depend upon their taking early in the morning (a very bad habit) a glass of beer, which had remained some time in the leaden pipe of the beer-engine.

When lead is introduced into the system it produces certain effects which are very characteristic, and which, since the time when Sir George Baker explained the poisonous effects of Devonshire cider, have been well known to doctors. The most characteristic effects are, first, lead colic; second, lead palsy.

1. *Lead Colic*, or "painter's colic," because it is very common among painters, especially among those painters who are careless about cleanliness. It is marked by most severe twisting pain at the stomach and about the navel, which is always relieved by pressure. There is also very obstinate constipation. "The belly is hard, the muscles of the abdomen strongly contracted, and the navel drawn inwards." When colic happens in painters, in those who work in lead factories, or who drink water or beer out of leaden cisterns or pipes, it may be suspected that lead is the cause of it. And the truth of the suspicion is, fortunately, easily tested, because, in nearly all cases of lead poisoning, there is a blue line to be seen along the margin of the gums.

2. *Lead Palsy.*—Palsy generally comes on after one or more attacks of lead colic, but sometimes altogether independently of attacks of colic. It affects mostly the muscles of the hand, wrist, and forearm. The hand drops curiously and has to be lifted by the other hand of the patient. The blue line along the margin of the gum will be seen in these cases also. In some cases a kind of apoplexy happens in lead poisoning cases, characterised by giddiness, extreme weakness, and torpor.

Causes. As lead is the poison which produces these remarkable effects, anything which introduces lead into the system may cause the characteristic colic or palsy, or constipation, or blue line along the gums. The coarser ways of contracting lead poisoning are easily understood, as in the case of painters, plumbers, colour-makers, glaziers, potters, glass-blowers, and manufacturers of glazed cards. But it may happen to compositors, and cases are recorded of fishmongers getting poisoned from having lead counters covered with brine. If water is detained long in leaden cisterns or pipes, it is apt to become charged with lead, especially if the water is soft.

Drinking such water is not an uncommon cause of lead poisoning, either in animals or human beings. Cosmetics and hair lotions have sometimes been found to contain lead.

Treatment.—The treatment of lead poisoning is so far obvious, and may be domestic. If people are drinking beer or water out of leaden pipes, they must leave off doing so. All persons who work amongst lead must be very cleanly, and wash their skin often, so that the lead be not absorbed. There are medicinal antidotes to lead poisoning, of which sulphate of magnesia or Epsom salts is one of the best. This medicine given in connection with dilute sulphuric acid at once overcomes the obstinate constipation, and favours the elimination of the poison. The iodide of potassium is also a very useful remedy in such cases; but the medical management of lead poisoning should be trusted to a medical man. Where this is impracticable, the following prescription may be taken:—Sulphate of magnesia, one ounce to two ounces; dilute sulphuric acid, one drachm and a half; tincture of henbane, two drachms; peppermint water, eight ounces. Mix. Two tablespoonfuls to be taken two or three times a day.

FOLDING SERVIETTES.—I.

ALMOST any amount of fancy or ingenuity can be displayed in folding table-napkins, or as they are commonly called, adopting the French name, *serviettes*. To make them look well, or even to succeed in the more elaborate styles of folding, serviettes are required very fine, exactly square, not too large, to be starched, and folded quite damp, every fold creased in place with a clean hot iron. A box-iron is the best for this purpose, and it should be a small one, easily used. The pantry or housekeeper's room is the place for folding the serviettes, which may then be brought to table on a tray; but a lady may place a board covered with flannel on a small, light table, put the iron-stand upon it, and shift it down the outside of the dinner-table as she folds, so as to place each serviette as it is done on a plate. A second iron must be heating to exchange with the one in use, for, unless very hot the napkins will not be stiff enough. The shell and the Victoria Regia and the basket require them very stiff. If at any time the folding of a serviette is unsatisfactory, on no account attempt to refold the same; it is impossible to succeed with one already creased. Throw it aside to be re-damped or re-starched, which will take but a few moments, and meanwhile proceed with fresh ones.

Serviettes folded in alternate patterns down a table look well, such as mitres and shells, and there may be flowers placed in the shells. Figs. 32, 14, 4, and 5—the mitre, the cornucopia, the pocket, and the shell—are perhaps the best of these designs. The commoner kinds of folding can be achieved without the aid of starch, or even without an iron, although they look much better so assisted. The very simplest folds look extremely pretty if carefully done. Serviettes should be spotlessly clean and glossy, and great nicety is required to fold them well. They are not folded after they have been used once; when for the family the

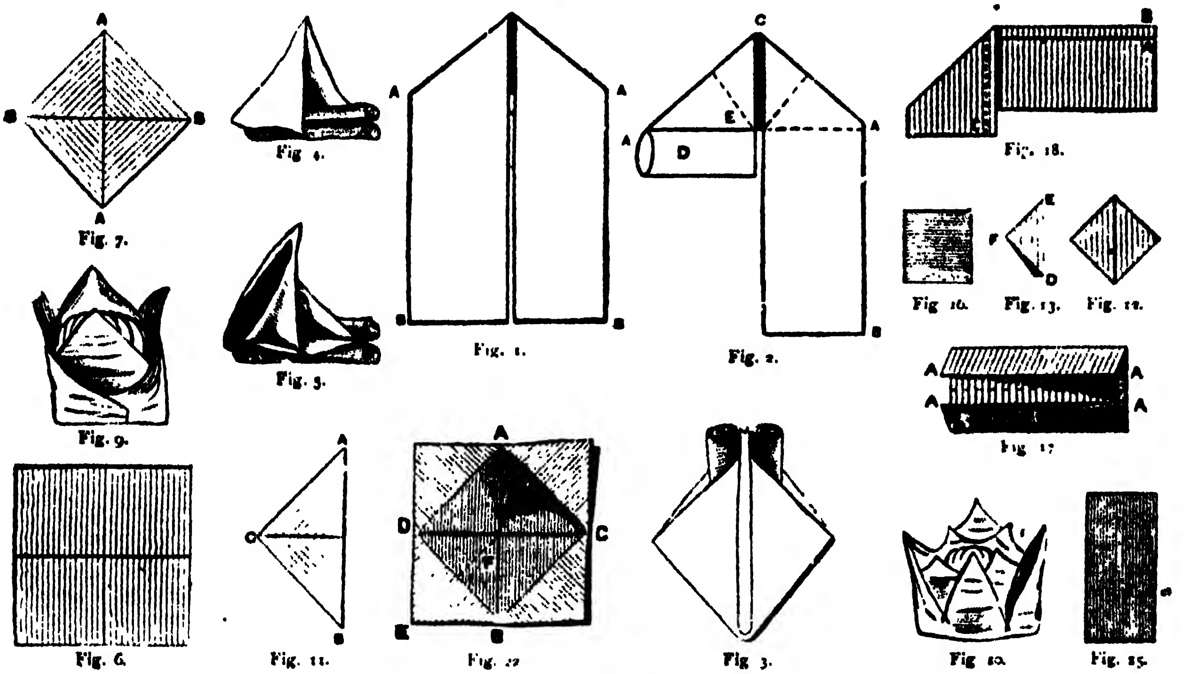


Fig. 7. Fig. 4. Fig. 1. Fig. 2. Fig. 18. Fig. 16. Fig. 13. Fig. 12. Fig. 9. Fig. 5. Fig. 17. Fig. 6. Fig. 11. Fig. 22. Fig. 3. Fig. 10. Fig. 15.

same are likely to come to table again, a ring is placed beside each person, and the article rolled and slipped into it after use the first time, and brought to table again in the ring, the mark on the ring distinguishing the serviette of each person.

1. One of the simplest styles is to fold the napkin in four, lengthways; then, like Fig. 1, keeping the whole of the fold at the top and the edges at A A and B B; roll up the ends at B to A, one at a time, as in Fig. 2, but roll them the reverse way to Fig. 2—that is, under, not over. When both ends are rolled up as close as E, with a twist of the hand bring the ends of the rolls, D, to the point C, like Fig. 3. Then lay the part shown in Fig. 3 flat on the table, and set up the diamond-shaped fold at the top with the hands; slip the dinner roll or slice of bread into the hollow. Before the bread is put in, Fig. 4 represents the form of the folded serviette.

2. This varies a little from No. 1 in appearance. First fold it four times, lengthways, and then like Fig. 1, as already described, keeping the hemmed edges at A A and B B; then roll it up precisely like Fig. 2, the rolls as there shown, outside. When both are close as E, take the points of the rolls at E between the thumb and finger of each hand, and bring them together *underneath* at C. By this means the point C will stand perfectly upright. Press the whole properly into place. The difference

between No. 5 and No. 4 is this: in Fig. 2, No. 4 is rolled under; No. 5, over. In Fig. 3, the part where the fold meets, which is shown by Fig. 4, is under or next the rolls which form No. 5. To form No. 5 this fold is outside. Fig. 5 displays the folds of No. 2. No. 5 stands more upright than No. 4, and is a little less simple in appearance.

3. *Crown Pattern.*—This requires the damask to be very stiff. Halve and quarter it each way, like Fig. 6; bring all the corners very exactly to the centre, like Fig. 7; bring the four corners of Fig. 7 also to the centre, and smooth them at the crease; then form it into the crown by folding the corners at A A in Fig. 7, and slipping them into similar folds at B B, bringing the napkin round and upright in the form of a crown (Fig. 9).

4. *The Flower.*—To make this way of folding resemble a flower, copy Fig. 6 and then Fig. 7; bring all the corners of Fig. 7 nearly, but not quite, to the centre for the second fold; finish it as before, and then curl up the four centre points, like Fig. 10.

5. *The Cornucopia* looks very pretty down a long dinner-table. Fold the serviette in a half, lengthways; then fold it like Fig. 11, the hems at the broad end. Take the corners, A and B, bring them back again to the corner C, like Fig. 12. Double Fig. 12 together down the centre. This represents Fig. 13. At D, in Fig. 13, three folds exist, two outer and one inner. Set Fig. 13 upright, over the dinner roll with three of these folds to one side. Shape it nicely, keeping the space from E to F close. A flower at the point F has a very pretty effect, especially if it be a scarlet geranium, which contrasts well with the white damask, and gives a brighter look to the table. To carry out the idea of the cornucopia, a few flowers and leaves may be placed in the manner shown in Fig. 14, the stalks slipped under the edge, but must not be done too profusely. When the serviettes are removed by the guests, the flowers will be taken away by the waiter on the plates, and can be transferred to the finger-bowls.

6. *The Cocked Hat* is made by folding the serviette first in half one way, and then in half the other way and once more in half, lengthways, in the way illustrated by Figs. 15 and 16, the dotted lines showing in each diagram where the next fold is made. Then make a fold still lengthways, turning one one way and one the other, not quite to the top. This fold is shown by A A A A in Fig. 17. The serviette is supposed, in this diagram, to be laid flat on the table, the dotted line in the centre marking the fold, which is shown in Fig. 18 by the line at B. The lines in Fig. 17, from A to A and A to A, are the folds to be made lengthways, not quite meeting the top, with the hemmed edges upwards where the lines are marked. The napkin is supposed to be doubled in half again in Fig. 18, with the hems outside at the line A, on each side of it; then fold as in Fig. 18, first one side and then the other, and iron down the crease; then partly unfold one side, as shown in the diagram, Fig. 19. The dotted lines mark the creases in the unfolded part, and C and C show how the piece marked C, in Fig. 18, is turned down. The piece raised is now folded down again, the dotted line, creased, passed over the other side, and the ends tucked in and creased down flat. The serviette now resembles Fig. 20. Arch it nicely over the dinner roll, and put a spray of flowers at the top to resemble the feather in a cocked hat, in the manner shown in Fig. 21.

7. *The Basket.*—Fold a serviette twice, like Figs. 15 and 16, once longways, and the second time across. This is to reduce its size. Fold the four points to the centre, like Fig. 7; turn it over on the other side, and again fold the four points to the centre; again turn it face downwards, and with the other side up, turn back the four corners, Fig. 22; fold it from A to B, Fig. 22, and C to D, both folds to be made keeping the part uppermost outwards. Open the last fold from C to D, and bring the shoulder B to the shoulder D by a fold at the dotted line between E. Repeat the same fold as that at E all round. The napkin will now stand on end as a basket, by standing it on its legs at E and the other three corners, and opening it back at F, in the way shown by Fig. 25. Fill the spaces with a few flowers, or cut the roll in four, put a portion in each, and just a flower or two. This pattern placed the reverse way on the plate also looks well, the dinner roll in the centre outside, Fig. 24: it requires the napkin to be very stiff, and exact in the folding. In Fig. 23 the bread is to be placed underneath.

8. *To fold a Serviette as a Dahlia.*—Make it very stiff; fold the four corners to the centre as in Fig. 7. Repeat the process by folding the four corners now existing

Fig. 26.

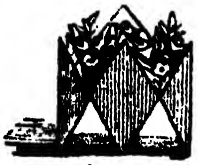
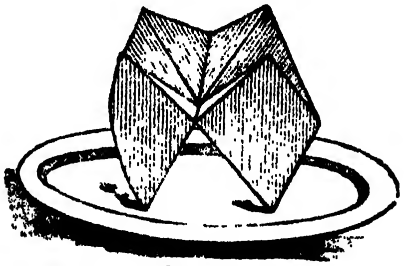


Fig.



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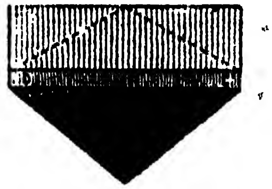


Fig.

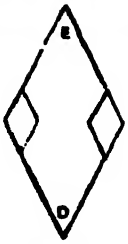


Fig. 11.

Fig.

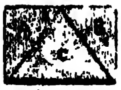


Fig. 28.

Fig. 24.

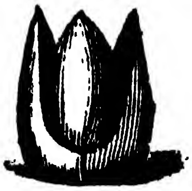


Fig.

Fig. 14.

Fig.

Fig. 21.

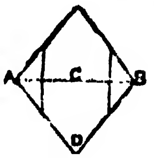


Fig. 10.

Fig.

to the centre; and still repeat it a third time; form it round by pleating the edge, one pleat in the centre of every side, and one pleat to every corner. When placed upright over the bread, the flower should open to the heart and display every petal.

9. *The Mitre* is not difficult to fold, and always looks well. First fold the napkin in half; then fold down the corners as shown in Fig. 26; turn these corners down again, to meet in the middle, which is indicated by a dotted line. The napkin now looks like Fig. 27. Fold this in half at the dotted line in the centre, bringing the two points back to back, for the fold is made *outwards*. Fig. 28 is the result. Fold over the two ends A and B, and produce Fig. 29. Let down the point C in Fig. 28, and fold the corners inside it; fold back C in its place again, turn the napkin over, and let down the point like C on the other side. The napkin now resembles Fig. 30. Fold it down at the dotted lines, turning the points A and B towards C. Fig. 31 is the figure now represented. D is the point let down; turn it up again to E; slip the hand inside the hollow underneath the napkin, and shape the mitre nicely, and then place it over the dinner roll, like Fig. 32.

MARKETING.—IV.

PRICES.

We wish we could give a satisfactory answer to the question, "What ought I to pay for this?" which very naturally occurs to the minds of purchasers. It is a maxim in the trading world, that the value of any article is what it will fetch. Another maxim, very popular among commercial men, is, "Buy in the cheapest market, and sell in the dearest." There is very little doubt that this last is acted up to on a large scale by those who buy at wholesale, and sell at retail. What is called forestalling a market is probably less common than formerly, owing rather to its greater difficulty than to the higher tone of commercial morality. A man was a forestaller who purchased goods intended for the open market before they came into the market, or who induced the owner of such goods to demand a higher price than was just. Heavy punishments were inflicted upon those who did this; and, indeed, so necessary was it that the public should be protected, that a man who had corn in his possession was forbidden to buy seed corn in the market without selling at the same time an equal quantity of his store. Our forefathers went even further than this, and fixed the prices to be paid for bread and many other articles of home consumption. At present, almost the only protection which the law offers to purchasers is against actual fraud. Weights and measures are inspected, and any dealer who sells as genuine what is spurious or adulterated, or who sells less than he professes—by giving short weight or measure—is liable to prosecution. This is about all, and it leaves the inexperienced buyer very much at the mercy of the unprincipled salesman: especially in cases where the adulteration of goods is easy to effect and difficult to discover. Under the circumstances, the only things we can do are, to point out the danger, and to give such information as will be of advantage to our readers. The question of adulterations will be treated of separately, but it is needful to mention it here, because one of the considerations which influence prices is quality.

Every one is aware that the prices of nearly all articles of food fluctuate more or less. The variation is more frequent with some things than with others, and also more considerable, but it affects them all in turn. The causes to which these changes are due are numerous, the more usual being the time of year or season, the supply in the market, the quality, and the locality. Some kinds of food which are out of season are often cheaper than when in season, while others, which are accounted delicacies, are dearer out of season than at any other period. Such things as cannot be had out of season, as game and some sorts of fish, are more costly at the opening of the season than afterwards, unless the supply falls very short. Even when the demand is equalled by the supply, a sudden or temporary increase of the demand will cause a corresponding increase in price. On this principle, fish is often dearer in Lent, turkeys at Christmas, and geese at Michaelmas and Christmas. With respect to Christmas, it is a fact that a very general rise in prices takes place then in meat, poultry, game, butter, and some other articles. Throughout the winter months higher prices are demanded, not only for several sorts of food, as vegetables, but for such important matters as coal and candles. It may be noted also that woollen goods can be bought cheaper in spring and summer than in autumn and winter. Prudent housekeepers, who have the means, and know the certainty of these changes, usually lay in a stock of such things as will keep, while prices are moderate. For such things as will not keep, every one must go to the best markets he can find.

Articles of food which are of a perishable nature, and easily affected by changes of the weather, fluctuate in price in a very marked manner. This is the case with meat, fish, and poultry, though some kinds are more liable to variations than others. Veal is particularly uncertain, pork less so perhaps, and beef and mutton still less. Almost every kind of fish is exposed to these uncertainties. Mackerel, soles, turbot, salmon, and even herrings, may be sold one day at twice or three times the price which they bring the very next day. With these the variation depends not only on the weather, but upon the supply. Fortunately for poor purses, it very seldom occurs that all kinds of provisions are high-priced the same day, and therefore a tolerably prudent manager may commonly market economically by avoiding what is for the moment enhanced in price.

Quality is another matter affecting prices, and a very important one. In the case of meat, some joints are habitually dearer than others, and not always because they are the most wholesome, or the most economical, but often because they are either supposed to have a more delicate flavour, or because they are usually sold to such as can pay high prices. Apart from these considerations, however, the finer qualities of beef, mutton, veal, and pork, naturally command higher prices than those of inferior character. The same rule applies to everything, and yet it is not always borne in mind by persons who wonder to find they can purchase joints of meat at one shop at a lower price than at another in the same locality.

Locality has very much to do with the range of prices. There are in London and most large cities what are called dear shops, and dear neighbourhoods. In London, especially, it is so; and the difference of price is not at all due in every case to difference in quality. Two dealers may purchase together, in the wholesale market, precisely similar goods, at the same prices, and yet in the retailing of them one may charge fifteen to twenty-five per cent. more than the other. This is explained in various ways; for example, a retail dealer of fish in Billingsgate, or of meat in Smithfield, obtains his wares without loss of time, cost of conveyance, &c., and hence he can sell cheaper than the tradesman who lives four or six miles from the market; besides which his sales are often more rapid and certain. Again, a costermonger can sell provisions, as vegetables or fish, for less than a shopkeeper, because he has neither rent nor taxes to pay; and by going to market after the principal demand is over, he often purchases at a lower price. These and other considerations will show that the retail dealers in our daily food cannot

all afford to sell at the same prices. In actual practice, it will often be really cheaper to pay a higher price than to expend money and time in going a long journey to a cheap market. Nevertheless, it is a fact that most places illustrate the principle of cheap and dear shops for articles of equal quality.

There are many things which people are too prone to buy at low prices, irrespective of all other considerations. For example, coffee, tea, mustard, pepper, and butter. It is difficult to obtain mustard and pepper unadulterated, but the cheaper they are the worse they are, or rather, in practice, the cheaper they are the dearer they are. For coffee, it is best to buy the berries unground, to grind them at home, and to add chicory to the taste. For tea, a medium-priced black is cheapest in ordinary cases, flavoured with green and orange pekoe at a higher price. For butter, what is called Aylesbury fresh is best and lasts longest, although it costs most at first. Very low-priced butters are neither good nor economical. A few experiments will, however, be more useful than all the rules we can lay down, and therefore we advise all prudent housekeepers to adopt that course. By so doing, and by choosing respectable tradesmen, and paying ready money, they will get along comfortably.

HOUSEHOLD AMUSEMENTS.—XXVI.

MODELLING IN CORK.

MODELS are either executed in detail, to give a miniature representation of a building, &c., or they are made as an original pattern, from which is to be constructed an object on an enlarged scale, or copied exactly.

Modelling in cork is an interesting work, and is chiefly applicable to the imitation of ruins, such as old churches, castles, grottoes, caves, &c.; and the materials required are small pieces of wood, cinders, sand of various colours, powdered fluor-spar, gums (acacia and tragacanth), starch, paper (white and brown), cork sheets, cork raspings, and old bottle corks, paints (oil and water), varnish, moss, lichens, ferns, and grass, glass, muslin, and net, chenille, hay and straw, varnish, glue, and cement. The size of the model will determine the quantity of each article, and the nature of the model will show the articles that will be required.

The tools consist of brushes for paints and varnish, two or three bradawls, a sharp penknife, a chisel, hammer, scissors, and pencil.

To form the model of a ruin in cork, the frame must be made of thin wood or stiff millboard or of cork only, according to the size; and if made to represent a building, and not merely from fancy, each part must be cut out in due proportion.

The dimensions of the object having been obtained, the number of feet must be reduced to inches or the fractional parts of an inch, to form a scale for carrying out the whole of the work. A piece of wood of the size required must then be got, and the plan marked out on it in pencil, and a thin layer of cork glued on with common glue to represent the ground or floor of the building. The walls of a ruin are formed of sheet cork, made to represent stonework by irregular lines of lead pencil, which are afterwards to be coloured according to the nature of the model, the ruined parts of the stone being represented by pricking the cork with a blunt penknife; and any ornamental representations may be made by a colouring with lampblack and raw sienna, touched up with varnish. The walls may be strengthened by gluing small pieces of cork against them to represent fallen stonework.

When the building is complete, in order to represent the walls covered with ivy, the cork is to be washed over with gum where ivy or moss is to be represented, and small pieces of moss fixed on. To represent moss, the ruin must be gummed and covered with moss rubbed to a powder, and sprinkled over the part requiring it. The white lichen may be also sprinkled over parts of the model in the same way, and different portions of it may be touched up with water-colours.

Shrubs and small trees are formed of wire covered with brown tissue paper, upon which is glued moss and small pieces of lichen, and the wire stem fixed in the cork flooring.

If a little gate and wooden palings are attached to the ruins they are to be made of wood, darkened with sienna and varnish.

Broken columns and fallen blocks of stone are easily represented in cork, and may be carved with a sharp penknife, and partly covered with moss and lichen rubbed almost to a powder and sprinkled on the surface, first brushed over with gum; a small pool of water can be represented by hollowing out the ground, and inserting a small piece of looking-glass, round which may be fixed with gum, moss and grass, and small shrubs and trees made of moss.

The flooring is to be strewn with sand or fine earth after being washed over with gum, with here and there finely-powdered moss.

As an introduction to this interesting work, a very pretty model of an old gate may be very easily constructed as follows:—

Cut three pieces of wood, about six inches long and an inch in diameter, out of a piece of common firewood; or get three pieces of wood forming small twigs on a tree, but the firewood will be best; then take two thicker pieces for the gate-posts, and glue on them the three narrow pieces. On a piece of wood about ten inches long and four wide, and half an inch thick, fix the gate, by making holes in it, and inserting into them the two posts, fixing with glue. Then cut two thick pieces of wood about double the height of the shortest gate-post, and two inches wide; also two short pieces about three inches long, and fix them together with strips of paper and glue. Cover the wood with cork, then thickly with moss, attaching a thin piece of cork to the side to form a broken wall, marked like stonework, making a pointed arch over the gate. On this woodwork, glue thin pieces of cork, and draw lines with a pencil to represent stones in blocks, and with glue fix thickly over it moss and lichen to represent ivy. When dry, attach it to the wood on which the gate is fixed; glue over the wood foundation, sprinkle it with moss and lichen in powder, and fix on it large pieces of moss and coloured lichen to represent flowers and wild plants.

When large models of castles or cathedrals are made, the windows are filled with thin glass or net, and the frames formed of thin strips of paper; and the interior of a cave is to be sprinkled with the powdered spar, stalactites being represented by pieces of paper or wood smeared with glue and sprinkled with powdered spar or glass.

Trees are made of short pieces of shaded Berlin wool attached to wire, and stuck in the cork; the stem of wire must be covered with narrow strips of brown or green tissue paper bound round, and the wool must be knitted on fine pins and pulled out, to give it a rough curly appearance.

Portions of cork required to be hollowed out, are either to be burned with hot wire and scraped, or made with a sharp-pointed bradawl; and to give effect, powdered brick, slate, and chopped lichen or moss dusted over the cork previously glued.

Ancient cities, cathedrals, churches, castles, temples, and landscapes are constructed of cork with very beautiful effect; towns being represented by a piece of cork cut and marked to the form of houses, and the trees

formed of moss. Sand and earth are sprinkled in some parts, looking-glass represents water, and dyed moss-dust the fields, raw sienna paint serving to give effect.

GARDENING.—XXXII.

MUSTARD, NASTURTIUM, ORACH, AND MARIGOLD.

Mustard.—There are two sorts in cultivation, the white and the black, the latter of which is cultivated principally for medical purposes; the white is cultivated chiefly as a small salad, and is used as cresses while in the seed leaf, at which time they are mild and tender, but when advanced into rough leaf they are strong and disagreeable. Both varieties are raised from seed, which will grow in almost any soil, and if sown in beds, as they mostly are, and always should be, one ounce of seed will be sufficient for a bed four feet by four feet. When mustard is in constant demand, as it generally is in the summer, make a regular rule of sowing a certain quantity every week, which precaution will ensure crops delicately young in regular succession. Choose a warm situation, and for early spring crops commence sowing about the 1st of March, and leave off, in the open air, about the second or third week in October; after which time it would be almost useless to sow in the open ground. After this season, and until frost sets in, sow under frames, and give air freely. For the demand through winter, sow in pots filled with old tan, in preference to soil, and place them in a moderate hot-bed prepared for the purpose, or in a stove. Protection will be required at nights, both in spring and autumn, and a covering of mats will be most suitable. Having apportioned out the ground, dig it and rake it very fine, then, instead of drawing drills as for cress, sow the seeds very thickly broadcast, and just cover them over with a little mould sifted fine. Water in very dry weather, but not otherwise. If seed be required it will merely be necessary to leave a portion of the first-sown crop in spring, which soon runs up and will yield plenty of seed the latter end of the summer.

The Nasturtium.—This is an annual plant, rising, if supported, to eight or ten feet high; the leaves have their leaf-stalk fixed to their centre. The flowers are produced at the end of June, and continue in succession till destroyed by frost; they are very showy, independent of their usefulness as a culinary plant. The flowers and young leaves have a warm taste somewhat like the common cress, and form an ingredient in salads. The flowers are frequently used as a garnish to dishes, and form a brilliant contrast to many other things. The berries are gathered green and pickled, in which state they form an excellent substitute for capers. There are two varieties in cultivation, the major and the minor, both of which are equal so far as flavour and usefulness is concerned. Both sorts are propagated by seed, of which one ounce will be sufficient for a drill twenty feet long. The seed may be sown any time from the beginning of March to the same time in May, but not later. A light fresh loam suits this plant the best, yet it will grow in any soil, but it is not so productive in a rich soil as one rather poorer. The seed should, if possible, be of the last year's produce, as they seldom grow well at a greater age. The seed may be either sown near a vacant fence, trellis, or wall, and the runners trained thereto, or on an open compartment, in drills four feet apart and an inch deep, placing the said seed at the bottom, two or three inches asunder. When the plants advance in growth, they must be trained either to a trellis, fence, or rodded in the same manner as peas are treated. The young runners will require to be conducted at first, but will afterwards climb without assistance. The berries must be gathered for pickling when they have just attained their full size, and while they are green, plump, and tender. If seed be required, the berries will be thoroughly ripe in August or September, when they may be gathered, spread out in the air to dry, and afterwards put by for future use.

Orach.—This is a hardy annual, rising three or four feet high, with oblong, variously shaped leaves, cut in the edges, thick, of a pale green colour, and of a slightly acid flavour. It produces its flowers in July and August, which are of the same colour as the foliage. There are two varieties, the white and the red. The leaves and tender stalks are used by many as a substitute for spinach, but the stalks are good only while the plant is young; yet the larger leaves may be picked off in succession throughout the season, and the spinach thus procured is very good and tender. This plant requires a light rich soil. It is propagated by seed, which should be sown in August or September, in drills, from a foot to eighteen inches asunder, and the ground raked evenly over, and afterwards kept clear of weeds during the autumn, and in the spring the plants must be thinned out to six inches apart in the rows. The crop may be gathered from the time it is strong enough, till it runs to flower, when it may be considered over.

The Marigold.—This is an annual plant, with a short divaricated stem, one or two feet high, and is divided into numerous branches, which are furnished with blunt lanceolate leaves. It produces flowers from the end of May to the autumn, which are of a yellow colour. It was well known and much esteemed in former times, and is still considered a valuable ingredient in broths and soups, in which it is, according to our notion, more pleasing to the eye than to the palate, but that may be from want of taste on our part. There are several varieties, but the single orange is the best of the lot for ordinary purposes. Seed may be sown any time from September to April, provided the weather will permit.

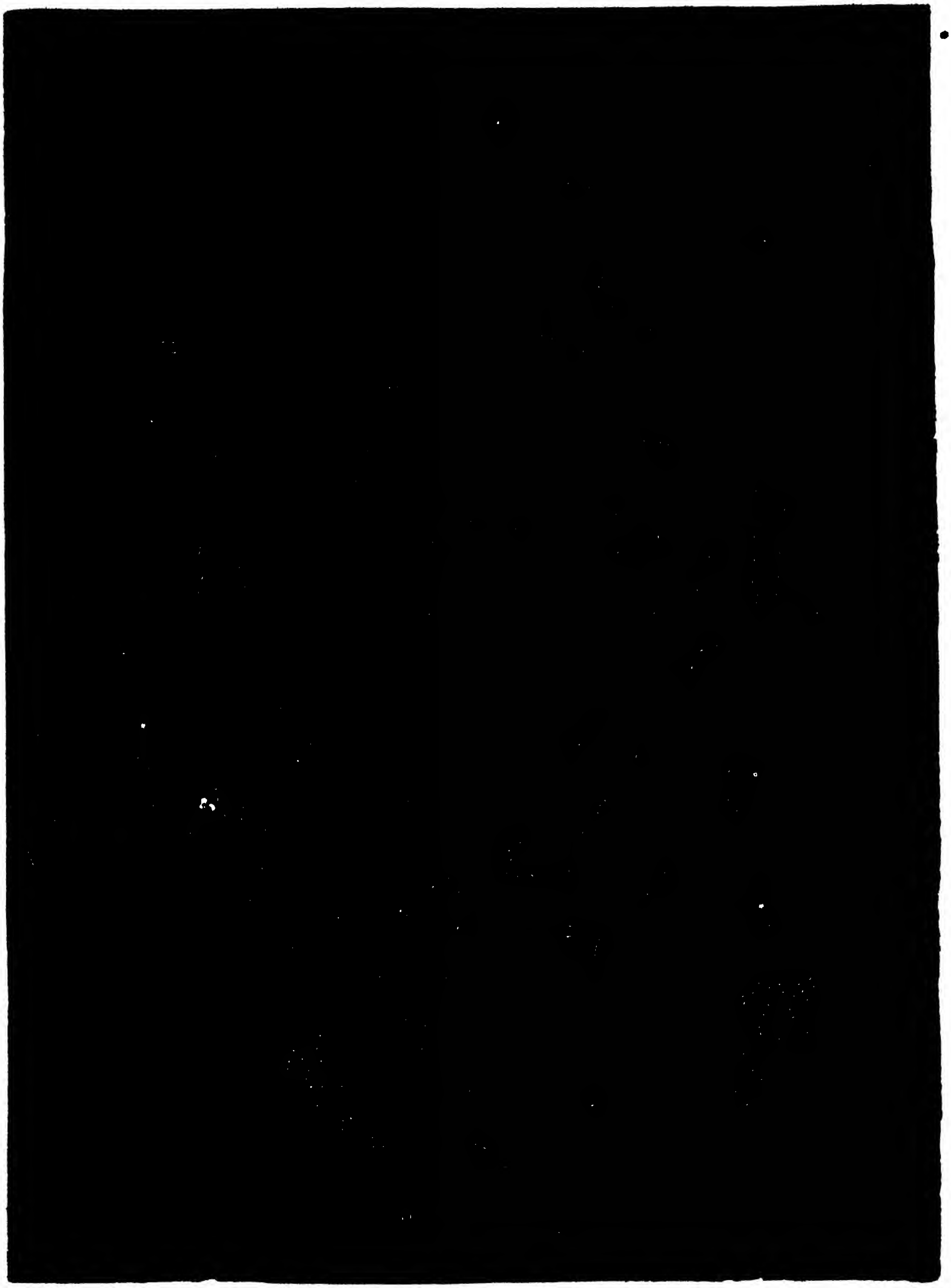
POINT LACE WORK.—XIV.

PELERINE COLLAR.

USE for the braid one with a fancy edge, or a plain braid, and work the edge. A large collar of this kind is very handsome for dress in winter, when open throats to dresses are cold. The limits of our pages oblige us to give the design in two separate blocks. The first is the back, showing the whole of the centre of the back. When tracing the design to work it, reverse the transparent cloth, and draw the other half of the back at the side of the central flower and leaf. Unite the two pieces in one, A to A and B to B. The whole design is done with one piece of braid, without any join. In the back the central leaf is filled with *point Grecque;* the flower (4), with Sorrento bars, worked two and two. The long leaf (8) is Sorrento bars; the lower leaf (5), *point de Bruxelles;* the large leaf above this is *Spanish treble point;* the flower (3) is *point de Bruxelles;* the leaf (6) Sorrento bars, two and two. There is a long leaf of Sorrento bars with a central line. Then come two kinds of flowers of *point de Bruxelles,* where the collar joins. This brings us to the front, which contains a flower of treble *point d'Espagne* (Spanish), and a corner of *point de Bruxelles.* We also recommend that the three largest wheels (1, 2, 3) be filled, two with Spanish point and the centre with *point de Bruxelles.* There is one long leaf near the corner, of Sorrento bars, two and two. The rest of the collar is composed of ordinary button-hole bars and Sorrento wheels.

Along the top run a straight line of braid, knotting all the points. Sew it to these, and connect it with bars. Wherever any more bars appear needed than are given in the engraving the worker can add them.

The second illustration, completing the collar, is given on page 204.



POINT LACE PELERINE COLLAR—FIG. 1.

HOUSEHOLD CHEMISTRY.—XI.

HOW THE ATMOSPHERE IS PURIFIED.

The amount of carbonic acid gas contained in atmospheric air may be ascertained by chemical analysis. The process consists in adding, drop by drop, a filtered solution of caustic barytes to a measured quantity of atmospheric air contained in a stoppered vessel until all the carbonic acid gas is removed. The vessel containing the air is to be well agitated after each addition of the barytes water, to enable the carbonic acid to combine with it the more readily. When all the carbonic acid has been taken away may be learnt by occasionally adding slips of white blotting paper, previously coloured yellow by being dipped in a strong infusion of turmeric. As long as any carbonic acid remains in the air for the caustic barytes to combine with, no discolorisation of the turmeric paper will take place; but as soon as all is removed, the yellow colour will change to brown. When the insoluble carbonate of baryta thus formed is collected on a filter, dried, and weighed, it will show the amount of carbonic acid gas that was contained in the portion of air examined.

The quantity of carbonic acid gas contained in the atmosphere varies in different situations from four to six parts in each ten thousand, the average quantity being one part in two thousand. Although the amount may appear small, yet the quantity of carbon thus contained in the atmosphere is very large—greater in amount than all the trees or other vegetable growths, and all the coals hidden in the mines in the world, the atmosphere being of such an extent. It has been calculated that all the oxygen consumed by all the living creatures in the world during a hundred years would not exceed the $\frac{1}{7200}$ part of the entire quantity contained in the atmosphere.

Although many other gases besides carbonic acid are being continually produced by combustion and organic life, and escape into the atmosphere, yet they are but rarely to be found in the air. This is due to their being so quickly decomposed in the atmosphere into other substances, the means employed by Nature for this purpose being the oxygen in the air. In this way the atmosphere is retained in a healthy state, the various poisonous exhalations that enter it being converted into the comparatively harmless forms of water, ammonia, nitric acid, and carbonic acid. Those substances are afterwards dissolved out of the atmosphere by the rain, and being absorbed by the ground, supply the nourishment on which the growth of plants and vegetables depends. The state in which oxygen has the most power over the deleterious compounds that enter the air is when it is in that peculiar form of condensation in which it is known as "ozone."

The oxygen exhaled from growing plants under the influence of sunshine is in this condition, and it is believed that the reason the pure air of the country is so much more invigorating and conducive to health than that of towns is principally due to this cause. During thunderstorms and electrical disturbances of the atmosphere, ozone is produced in considerable quantities, and it is well known how much more pleasant and healthy the atmosphere becomes after a storm has purified the air. It is believed that the bracing effect produced on the constitution by inhaling the breezes from the sea is due to the large amount of ozone they contain. Ozone also possesses powerful bleaching properties. Every person in the country knows how much whiter and cleaner linen looks that has been placed on a bright summer's day, after being washed, to dry on the grass than it does when dried in a room. This is due to the ozone, liberated from the damp grass on bleaching the fabric.

As might be expected, ozone is found in larger quantity in the atmosphere in the vicinity of the sea, and in the country, than it is in the neighbourhood of large towns; while in close streets and populous towns it is very deficient in amount. It is thought that the absence, or diminished quantity of ozone is very prejudicial to the health, and that epidemics of sickness sometimes result from this cause.

The presence of ozone in the atmosphere may detected by means of test papers prepared for that purpose. They must be kept in a well-stoppered glass bottle, covered on the outside with tin-foil, so as to secure them from the action of both air and light. The simplest of these papers is prepared by soaking white paper in a solution of sulphate of manganese. When this is exposed to ozone, the white test paper is turned brown, from the decomposition of the sulphate of manganese, and the formation of the hydrated peroxide of that metal. The other kind of test paper is made by brushing it over with a solution of one part of the iodide of potassium in two hundred parts of water, boiled at a gentle heat in a glass or porcelain vessel with ten parts of starch. This paper turns blue on being exposed to air containing ozone, owing to the absorption of the oxygen—by which the potassium is converted into potash—and liberates the iodine previously in combination with it; the iodine thus set free forming a blue compound with the starch. In preparing these test papers, it is advisable to employ that kind of paper prepared specially for chemical and photographic purposes. The ordinary writing and blotting papers often contain various substances which might interfere with the action of the tests.

Ozone may be produced artificially, and, by this means, its peculiar properties may be readily examined. On passing a current of electricity through dry oxygen, the gas becomes diminished to one-twelfth of its volume, and assumes the condition of ozone. To obtain this result it is essential that the current should produce either light or heat in its passage, otherwise the ozone will be decomposed as fast as it is formed. But it is not material whether the electricity employed be obtained from a voltaic battery, or by the action of a frictional electrical machine.

After the oxygen has been thus acted on, it will be found to have acquired properties that it did not previously possess. On a piece of card, covered with the black sulphuret of lead, being introduced into it, the black card will immediately turn white. In this case the black sulphuret is immediately converted into the white sulphate; the sulphur being oxidised into sulphuric acid, and the lead into an oxide. It is found capable of acting even on cork and india-rubber, owing to its powerful oxidising properties. Even silver, if exposed in a moist state to the action of the gas, is converted into the peroxide. If after the oxygen gas has thus been acted on, and acquired these properties, it loses them and resumes its previous volume and condition, on being exposed to a temperature of 550° Fahr. Ozone is also produced when a stick of freshly cut phosphorus is placed in a stoppered bottle, and left there for some hours. The service that ozone renders us, in preserving the atmosphere in a healthy state, is at once perceived, when we consider the immense amount of organic effluvium produced in large towns, and which is at once decomposed by the atmosphere the instant it enters it.

It has been ascertained that when carbonic acid gas—mixed with organic matter from the lungs, given off during respiration—reaches, in confined portions of air, such as crowded assemblies, the twelfth part of one per cent., it can be distinctly perceived. Now, as a human being gives off from twelve to sixteen cubic feet of carbonic acid gas during the day, it follows that he renders injurious sixteen thousand feet of air. The rapidity with which air parts with its ozone, when it meets these deleterious substances, is surprising. It has been found that the wind passing at the rate of from fifteen to twenty miles an hour

near Manchester, lost all the ozone it contained, before it had passed over a mile of that city. The same effect was found to be produced on the atmosphere when the wind blew over London, but to a less marked extent.

It is, perhaps, impossible to insist too strongly on the importance of a free supply of pure atmospheric air for the maintenance of health, especially in crowded dwellings. It has been ascertained that there is a continual exhalation of organic matter from living creatures. If the place in which they live is confined, this exhalation becomes deposited upon the floor and walls, and also upon the furniture and everything else the house may contain. The coating of organic matter which they thus acquire becomes decomposed, and gives forth disagreeable vapours, prejudicial alike to health and comfort. When these vapours are breathed, they are absorbed into the blood, and produce various ill effects on the system of the person respiring them. They produce headache, loss of appetite, lowness of spirits, and a languor for which the patient is unable to account. These symptoms are more or less marked, according to the impurity of the atmosphere and the strength of the patient. The ill effects produced by breathing the impure air are usually attributed to every cause but the right one—viz., the want of cleanliness and ventilation. In extreme cases, where the ventilation of the room continues to be much neglected, even fungi may become developed in the organic matter with which the place and the articles it contains are covered, and thus tend still further to increase the evil.

VINEGAR, AND HOW TO MAKE IT.

If a mixture of sugar, water, and some ferment like yeast be mixed together, and exposed to the action of the air in a warm place, the fluid will become converted into vinegar. To understand this process, we must remember that the chemical constituents of sugar are carbon, hydrogen, and oxygen. When exposed to the action of the ferment, the elements in its composition are re-arranged: some of the carbon and oxygen forming carbonic acid, which escapes in the form of gas, the remainder uniting with the hydrogen to form spirits of wine. If the spirit thus formed continues to be exposed to the action of the ferment, the elements of which it is composed are again arranged in a different manner, and acetic acid or vinegar, is formed.

The strength of the vinegar obtained in this way will, of course, depend upon the quantity of sugar present in the liquor fermented; and also whether sufficient yeast or other ferment has been added to convert the sugar into vinegar. Although sugar, treacle, and similar substances answer very well to convert into vinegar for household purposes, yet in manufacturing vinegar on a large scale they are never employed. In such cases it is found best to employ grain, the starch of which by peculiar treatment has been converted into sugar. Malt is a substance of this kind, and is usually employed for this purpose. It is prepared by wetting barley, and allowing it to remain in heaps until it germinates; while doing so, the greater portion of the starch becomes converted into a species of sugar called grape sugar, being similar in its nature to that present in dried grapes. Although this sugar does not possess the sweetening powers of that obtained from the sugar-cane, it answers well enough for the production of vinegar.

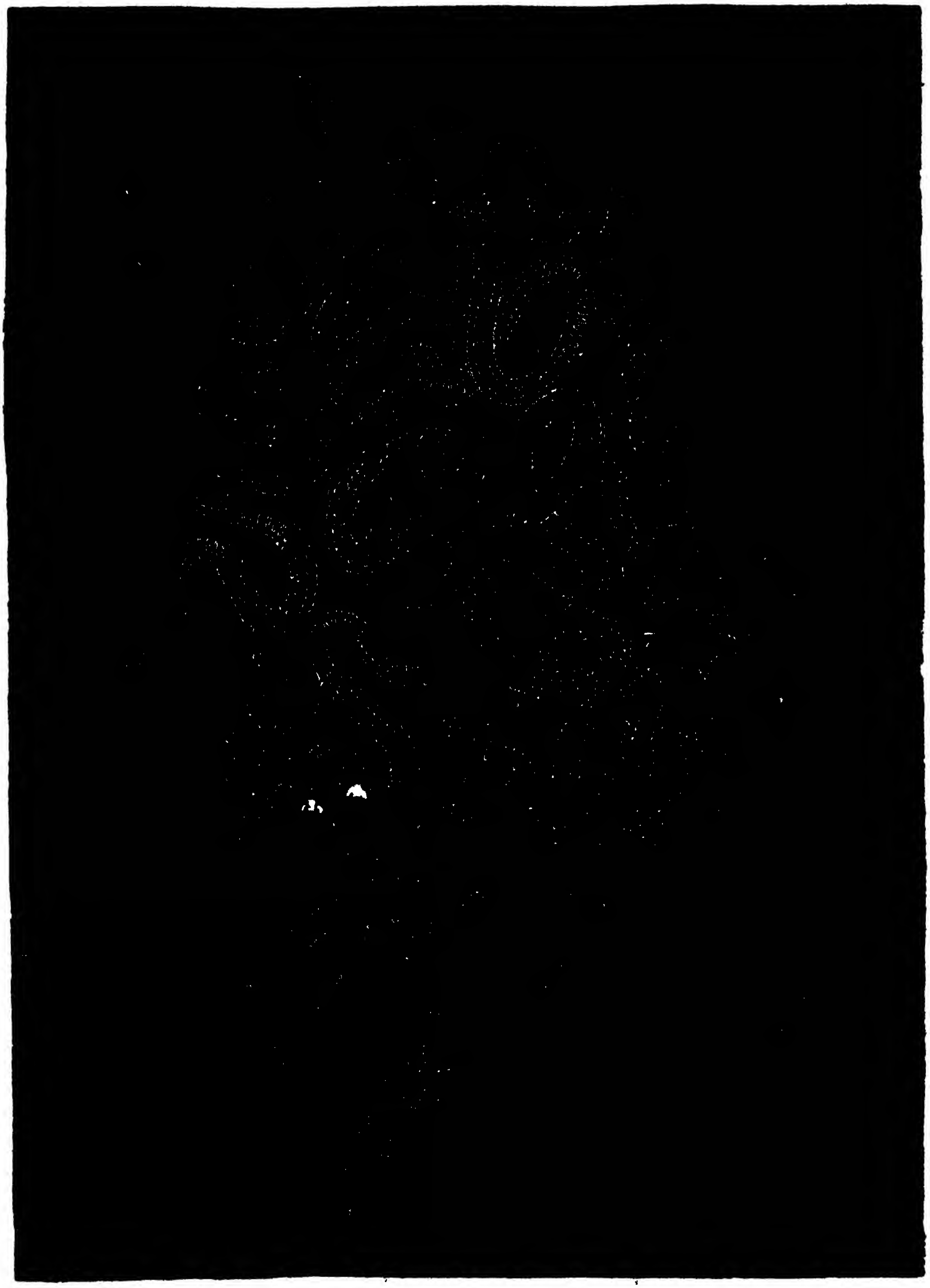
A considerable portion of the commercial vinegar is obtained by the destructive distillation of wood. The wood is placed in iron retorts, and exposed to sufficient heat to convert it into charcoal. During the action of heat on the wood, the elements (carbon, hydrogen, and oxygen) of which it consists form new combinations—water, acetic acid, and other products coming over, and carbon or charcoal being left behind in the retort. The liquid containing the acetic acid has then to undergo several chemical processes before we obtain the acetic acid free from the creasote and other matters with which it is combined. When this liquid—commonly known by the name of pyroligneous acid—is diluted with seven times its measure of water, it forms a strong vinegar. In this state it is clear like water; it is occasionally used in this state for pickling, where it is considered desirable that the pickles should be free from colour. More usually, however, this diluted acetic acid is coloured—by the addition of burnt sugar—to the appearance of ordinary vinegar. Vinegar, however, prepared from wood by heat, although it may possess the advantage of cheapness, does not have the peculiar taste of that obtained by fermentation, neither is it so pleasant to use as an article of diet.

GRINDING EDGE-TOOLS.

Edge-tools are fitted up by grinding, very much as a plank would be reduced in thickness were a large plane employed, in which were set a hundred or more very small gouges, each cutting a narrow groove. The sharp grit of the grindstone being harder than the iron or steel, cuts very small channels in the surface of the metal, and the revolving disc carries away all the minute particles that are detached by the grit. If we were to examine the surface of a tool that has just been removed from a grindstone under the lenses of a powerful microscope, it would appear, as it were, like the rough surface of a field which has recently been scarified with some implement which formed alternate ridges and furrows. Hence, as these ridges and furrows run together from both sides, at the cutting edge, the newly-ground edge seems to be formed of a system of minute teeth, rather than to consist of a smooth edge. For this reason, a tool is first ground on a coarse stone, so as to wear the surface of the steel away rapidly; then it is polished on a wheel of much finer grit; and finally, in order to reduce the serrature as much as possible, a whetstone of the finest grit must be employed. This gives a cutting edge having the smallest possible serration. A razor, for example, does not have a perfect cutting edge, as one may perceive by viewing it through a microscope.

Beginners are sometimes instructed, when grinding edge-tools, to have the stone revolve towards the cutting edge, and sometimes from it. When the first grinding is being done, it is a matter of indifference whether this is done or not; but when the finishing touches are applied near and at the very edge, a grinder can always complete his task with more accuracy if the periphery of the grindstone revolves towards the cutting edge, as the steel that is worn away will be removed more easily; whereas, when a stone runs in the opposite direction, the grinder cannot always tell exactly when the side of the tool is fully ground up to the edge. This is more especially true when the steel has a rather low or soft temper. The stone, when running from the edge, will not sweep away every particle of the metal that hangs as a "feather;" but when the stone revolves towards the edge, there will be no "feather edge" to deceive the eye of the grinder.

Scrap Jars.—These are useful in either parlour, drawing-room, or library, and consist of an ornamental jar to put waste paper or clippings in. If for a drawing-room, a china one is most suitable; for the library, we have seen the common large unglazed jars used, painted in oil to imitate china and afterwards varnished; for a sitting-room, flowers and patterns cut from chintzes, pasted on, then varnished. If done tastefully, they look exceedingly well. The jars should be selected with small mouths, to hide the contents as much as possible.



POINT LACE PELERINE COLLAR—FIG. 8.

COOKERY.—LX.

KITCHEN REQUISITES (*continued from p.* 188).

A WIRE stand, with three or four feet, will support small joints of meat high enough above the dish in which they are baked to allow potatoes, Yorkshire puddings, &c., to be done under them, besides making them easier to baste.

A wire meat-safe, to be hung in a current of air (where the sun never shines), is better than a canvas-covered one, and cheaper in the end. The meat-hooks should be movable, that they may be cleaned every time they are used. The shelf or shelves should also be movable, to admit of being placed at different heights.

A marble pestle and mortar is often called for, to crush the carcases and bones of fowls, game, and meat (for soups and stews), to make potted meat, to pound sugar and spice, and even prepare home-made medicaments. A double-headed pestle should have the two ends of different sizes. Mortars are made of porcelain, brass, and even iron; but marble is preferable, for obvious reasons. Porcelain mortars are often themselves more easily pounded than the articles they contain.

In cookery, a preliminary operation which has to be performed very frequently, is chopping. For this there should be not only a block, chopper, knives, and saw, for *meat* and suet, but also several unattached boards, about two feet square and two inches thick, for chopping vegetables, fruit, sweet herbs, &c. With a two-handled, three-bladed chopper, the process will be completed much more quickly than with a knife. For large vegetables, such as savoys, red cabbage, or Cos lettuce, which, when chopped or shredded take considerable room, the chopping-board will be much more convenient if furnished with a back and sides, to keep the fragments from falling over its edges. This board, which should be reserved for vegetables exclusively—a similar one may be used for pastry making—is *a little* more trouble to clean than one without a rim, which ought not to prevent its adoption.

Sundry small articles worth attention are:—A sugar-sifter, for dusting pounded lump-sugar over puddings, cakes, sweet omelettes, &c., either before or after cooking. A flour-dredger, for sprinkling flour over joints as they roast before the fire, on fish to be fried, into sauces and stews in the course of making, &c. A spice-box, for whole spice; a pepper-box, for ground pepper; a nutmeg-grater; and a bread and biscuit grater, for stuffings, surface brownings, scalloped fish, &c. A flannel jelly-bag—perhaps two—one for savoury, the other for sweet jellies. Moulds for jellies, creams, and puddings. Moulds with a cover, that will stand the oven, as for charlottes of apples. Moulds, also with a cover, for boiling a *chartreuse* and various puddings. Stamps and rollers, for pats of butter, cakes, and ornamental pastry. Similar stamps or punches, only sharper and stronger, for cutting vegetables into fanciful shapes, for garnishing, or for entering, with shred vegetables, into meagre soups. Patty-pans, for tablets and little cakes; flat iron plates, for lay tarts; bread and cake tins; pie-dishes; pudding-basins, with projecting rims, to assist in tying the cloth over them firmly; oval earthen pâté dishes with well-fitting lids, for potted mackerel, meat cheeses, hare pâté, &c. Flat shallow dishes, either of earthenware or tinned iron, yet deep enough to hold gravy or fat, will hold fish to be baked in the way called *au gratin*, eggs, kidneys, chops, sausages, &c. Larding needles, of different sizes, for inserting strips of fat bacon of various thicknesses, either into the surface of lean meats or throughout their entire thickness, require a short lesson for their use.

No kitchen should be without scales and weights, to test the correctness of the weight of provisions, and to measure the quantities when trying a new receipt.

A round or endless towel, a yard and a half long in its double length, suspended in a corner on a movable roller, and frequently changed, will save many articles of food, and many utensils from being handled with soiled fingers.

A knife-board, with a bath-brick, finds its place in the scullery rather than in the kitchen. Even if there be a knife-cleaning machine (of which there are several modifications), which is a great saving of time and labour, the knife-board serves to give speedy sharpness to a dull edge at a pressing moment.

The scullery also is the proper place for the plate and dish-rack or drainer. It is best made of wood, and can be fastened to the wall immediately over the sink at which the plates and dishes are washed and rinsed—the latter especially being done in hot water. The drip will thus be caught as it falls, and the maid will only have to stretch her arm to put the crockery in its place.

Empty bottles are often in the way. They may be put out of the way on a light iron bottle-stand, in a corner of the scullery, after rinsing and draining. This simple piece of furniture will be found not only to make room on the kitchen shelves, but to save many breakages. Those shelves, as many of them as may be, are a matter of course; but the cook's pride and comfort is a handsome kitchen dresser, whose dimensions and the accommodation it affords must entirely depend on the size of the kitchen, which should be furnished, not choked up by it. Every drawer and cupboard and shelf of the dresser will find its use. It should be made of white wood, not painted, but periodically scrubbed. The shelves (at least some of them) should have a rim at the front edge, to prevent things falling off. There may also be hooks, inside, outside, and along the edge of some of the shelves, on which to hang cups, jugs, and small utensils.

For her pastry, the cook should have a thick board in winter time, and a marble slab for summer use. Good pie-crust is difficult to make under either extreme of temperature. Butter, they say, goes mad twice a year, which is enough to drive the pastry-cook mad too. For the same reason, she should have both a wooden rolling-pin and a glass one. The latter may be cooled in summer by dipping it and leaving it a few minutes in a pail of water fresh from the pump. Not a bad substitute is a stout glass wine-bottle filled with cold water well corked down.

A whisk is indispensable for beating eggs to a froth, and syllabub-making. It also helps with many creams and omelettes soufflées. Iron-wire whisks can be bought at the ironmonger's, osier ones at the basket-maker's. The latter can be kept very clean, and avoid all danger of discoloration by rust; but they must be renewed after a short term of service, otherwise your syllabubs will very probably be full of their broken ends.

MEDICINAL VALUE OF THE CRUET-STAND.

VERY many persons are not aware that they have in their house a medicine chest, in the shape of a set of well-filled cruets and the condiments of the table. The *Salt*, for example, is a decided cathartic, in the dose of half an ounce or an ounce. It is also a destroyer of worms, in large doses, and its power is great in preventing as well as killing worms. In Ireland, the lower classes are much infested with worms, from the bad quality of their food; and a draught of salt and water is found very useful in expelling them. An illustration is also given of the bad effects of wanting salt, in the punishment once inflicted on criminals in Holland, by feeding them on bread made without salt; the consequence of which was the production of numerous worms, and the death of the unhappy sufferers in consequence. Some of our readers may remember the popular remedy of "brandy and salt."

The *Vinegar*, again, is refrigerant, and is moderately stimulant and astringent when applied externally. It formerly had great reputation in cases of poisoning by narcotics; but here it is of doubtful efficacy. It is certainly useful, however, when soda, potash, or ammonia, are taken in over-doses, as the acetic acid which it contains combines with and chemically neutralises them. Vinegar is a useful addition to the drink of patients in inflammatory fevers. Its odour is applied to the nostrils in fainting and hysterical complaints; and it is very useful as a fomentation in headaches, and in various swellings. Its vapour is beneficially applied to the throat by being inhaled; and the same vapour diffused through the chambers of the sick, though it may not destroy contagion, gives a pleasant fragrance which renders the air less offensive to the necessary attendants. Vinegar is also very useful when applied externally as a refrigerant; as to bruises, burns, and scalds, when the skin is not broken. For this purpose it is diluted with two parts of water. A lotion of vinegar and water is restorative of overworked eyes, as follows:—Vinegar, one teaspoonful; brandy, one tablespoonful; and spring water, one pint.

Mustard comes next. In our time every medicinal virtue has been attributed to mustard seeds. More lately a mustard emetic was extolled as infallible in cholera, to be superseded by salt and water. A mustard poultice (two tablespoonfuls of bread-crumbs and one of mustard mixed with vinegar and hot water) may be applied as a kind of blister, to stimulate the skin for the cure of internal diseases, in a manner quick and effectual, without the tedious waiting and the destruction of the outer skin which follow the application of the common blister. Mustard poultices are also applied to the feet to quiet delirium and remove the tendency of blood to the head, and to act as a stimulant when the powers of life seem much diminished in their energy. White mustard seeds have been given whole as a stimulant to the stomach, and to the system in general, in cases of palsy. The seed has been found useful in various diseases of debility and indigestion, if taken to the extent of a teaspoonful three times a day in milk, gruel, or water; to be swallowed whole, and not broken or masticated.

Olive Oil is demulcent and laxative. It is a good antidote to acrid poisons, and is given in large doses for the expulsion of worms; and in small doses, with mucilage and other additions, as an emulsion in cases of catarrh and sore throat. Warm oil, applied externally, is an emollient. When rubbed on the belly it gives much relief in dysentery and other abdominal complaints. Combined with hartshorn it forms the volatile liniment so useful as an external stimulant. Some have said that anointing the body with oil prevents a person from receiving the infection of the plague, and Francis Bacon was of opinion that rubbing the skin with oil was very conducive to longevity.

Nor is our cruet-frame deficient in stimulants. First is *pepper*, black or white, the latter stronger. When infused in water it will cure a relaxed sore throat, and *piperine*, the alkaloid from pepper, has cured ague. The Dublin "Pharmacopœia" has an ointment of black pepper, which has been recommended for ringworm. Cayenne, the king of pepper, possesses stronger virtues than the above: it forms a valuable gargle in cases of ulcerated sore throat. Poultices of capsicum are used for the fevers of tropical climates, and in ophthalmia from relaxation the diluted infusion of capsicum is a good remedy.

Ginger is an aromatic stimulant of considerable power. When chewed, it relieves toothache, rheumatism of the jaw, and relaxed uvula. When received into the stomach it promotes digestion and relieves flatulent colic. Gouty subjects are much benefited by ginger. For such persons preserved ginger, taken at dessert, after a mixture of viands, is most beneficial—the finest being that in small, round, tender pieces, sent from the West Indies. Ginger tea is an excellent stimulant for languid habits. Some headaches are relieved by applying to the forehead a poultice of scraped ginger and warm water. Ginger-beer disagrees with some persons, owing to its excess of sugar.

PRINCIPLES OF COLOUR, AND RULES FOR THEIR ARTISTIC APPLICATION IN DRESS, FURNITURE, ETC.—I.

THE study of colour has too often, in popular estimation, been confined to the painting of pictures, decoration of churches and mansions, or the manufacture of textile fabrics; and a knowledge of its principles is sometimes supposed to be useful only to artists, or a few connoisseurs. But if the principles upon which the greatest artists produce the greatest pictures be essentially the same as those required for the selection of a dress of an appropriate colour and pattern, to arrange a shop window effectively, a drawing-room table, or even a bouquet of flowers—an identity which can be proved—then the domestic happiness and pleasure of the entire household must be largely dependent on the ignorance or knowledge which they possess of these principles.

We want new ideas, new habits of thought, and a more elevated taste for beauty of forms, their elegant arrangement, and the harmonious delicacy of colour in common things. To use the words of Channing, "The farmer and the mechanic should cultivate the perception of beauty," and every man should aim to impart this perfection to his labours. Were every man a judge and appreciator of beauty, then indeed might we expect forms of grace and loveliness of colour to pervade domestic and every-day life—to replace, in our streets, the expensive ugliness of which we have so much, and in our homes to abolish the ornamental vulgarities of bad taste.

The Naturally Colour-blind.—An appreciation of colour depends, in the first place, as much upon the physical powers of the eye in conveying a proper impression to the mind, as that of music on the ear; but as there are some deaf to the charms of music, so there are others insensible to the charms of colour. No effort will create a natural gift, so no rules will correct the defective vision called colour-blindness, and which is so common in England, that (according to Dr. George Wilson) one in every 750 is more or less colour-blind—*i.e.*, unable to distinguish red from green, a soldier's coat from the grass of a field, which makes the custom of having red and green lights or flags for signals on railways and steamers highly dangerous and reprehensible.* In other cases, orange is mistaken for green, and yellow for light green; others see indigo and Prussian blue as black, and pink as pale blue. It is also true that there are individuals whose vision is perfect in regard to form, and light, and shade, but who are totally incapable of perceiving the effect of colour, every object appearing to them either white, black, or grey. This defect is not so common among women as men. There exists no remedy for natural colour-blindness, but there is another phase of colour-blindness, arising from the want of cultivation, which may be improved and educated to a very great extent.

Great pains have been bestowed on the education of the ear, but much still remains to be done in regard to the cultivation of the eye. To look *truly* we must consciously look *for* something—some object, or fact, or quality. If you have no aim in observation, you will see nothing, and remember nothing; if you have an aim, you will see that which you look for. What we call ordinary sight is not by any means all of one kind, but varies with our desires and our information. This habit of looking earnestly, gradually reveals Nature to us, and develops in us a new and a higher sense.

* Bright yellow is the colour most easily distinguished.

The rainbow is universally acknowledged to be the most perfect and beautiful arrangement of colour in Nature, and may be considered our ideal standard. Its colours were divided by Sir Isaac Newton into 360 parts, of which violet occupies 80; indigo, 40; blue, 60; green, 60; yellow, 48; orange, 27, and red, 45. These were supposed by Newton to be simple colours, but Sir David Brewster has proved that from the three primary colours—red, blue, and yellow—all the other prismatic tints can be produced. All colours depend upon the power of their substances to absorb and reflect light; in every ray of white light there are the following primary colours—red, yellow, and blue, which, with their intermediate and extreme tints, constitute what is called the solar spectrum. Different rays are absorbed by different substances; in opaque, white substances *none* are absorbed; and in black substances *all* are absorbed. In particular colours what is absorbed is complementary to what is reflected; thus, a blue substance has absorbed red and yellow, or orange, which is complementary to blue; a yellow substance has absorbed red and blue, or purple, which is complementary to yellow: and a red substance has absorbed blue and yellow, or green, which is complementary to red. Citrine, russet, and olive, with the greys and browns, are compounds of these colours, in unequal proportions. Black results from a mixture of blue, red, and yellow, of equal intensity and in equal proportions. Colours are regarded as warm or cold, positive or negative; thus blue is a *cold* and *negative* colour, and orange a warm and *positive* colour. Red is neither warm nor cold. All *warm* colours are contrasts to *cold* colours.

Light is understood to be an active, and darkness a passive, principle. White colour is an intermediate phenomenon: it is warm as it approaches the light, and cold as it recedes from it.

Colour as it affects the Mind. *Yellow* is the colour nearest the light, and is agreeable and gladdening. Polished gold gives a good and high impression of this colour, which must be perfectly pure to be pleasant.

Reddish Yellow, or Orange, is powerful and splendid, and excites lively, quick, and aspiring feelings.

Yellowish Red, or Vermilion, is the active side in its fullest energy; and impetuous, robust men, and savage nations are especially fond of this colour. Children when left to themselves never spare the vermilion and orange.

As yellow is always accompanied with light, so it may be said that *blue* brings a principle of darkness with it. As a hue it is powerful, and in effect a kind of conflict between excitement and repose. Blue is cold, and has an affinity with black.

Reddish Blue, or Lilac, is a little more active in character, though it may be said to disturb more than enliven.

Bluish Red, or Purple, still increases the unquiet feeling as the hue progresses, and it may be safely assumed, when used for dress, ribbons, or other ornaments, that it is most attractive when used sparingly.

Red.—The effect of this colour is as peculiar as its nature; it conveys an impression of gravity and dignity, and at the same time of grace and attractiveness. The first, in its deep dark state; the latter, in its lighter tint, and thus suits both the aged and the young.

Green.—The eye experiences a healthy and peculiarly grateful impression from this colour; if of equal proportions of blue and yellow, the eye and mind repose on it as on a simple colour.

Harmony of Colour.—There are two kinds of harmony in colour—one of analogy, the other of contrast. When the three primary colours are placed before us, our eyes accept the vision with a certain degree of pleasure; but they are most gratified when the intermediate colours are properly introduced, and the whole scale of the colours which constitute a ray of light is presented to them. True harmony consists in those colours being brought together which, though they may not be placed exactly in the regular order seen in the rainbow or in the chromatic scale, yet act in accordance with each other upon the eye, and produce no uneasy sensations within it, but rather afford it pleasure. The phenomena variously described under the names of "accidental colours," "complementary colours," &c., were first investigated by Buffon, and are of the greatest importance, since they show that the eye especially demands completeness, and seeks to eke out the colourific circle in itself. Any one may prove this for himself, by fixing the eye on a red wafer lying upon a sheet of white paper, when it will appear fringed with a faint green; if, after observing this for a considerable time, the eye is turned to another part of the white paper, where the red wafer cannot be seen, a spot will be apparent of the same colour as that which appeared to fringe the red—viz., green; hence green is considered the complementary colour to red, being composed of two of the three primary colours, of which red is the third, the eye apparently supplying the deficiency necessary to complete the component parts of a ray of white light. This experiment may be repeated with the other two primary colours, blue and yellow, when it will be found that the orange, which responds to blue, is composed of yellow and red; and that the purple or violet, suggested by yellow, contains red and blue.

Harmony of analogy is the most abundant in Nature, and signifies an affinity or similarity of colour. Sunset and sunrise are the most brilliant examples of this. A more sober and gradual kind is that in landscape, where the blue of the distant mountains changes as it advances towards the foreground, through olive and every variety of cool and warm green, to the sandy bank at our feet, glowing with yellow, orange, and russet. The next consideration is contrast of colour, which produces force, animation, and variety; it gives splendour to the gorgeous plumage of tropical birds; and flowers and butterflies owe to contrasted colours half of their beauty and dazzling effect.

Colours by Artificial Light.—As colours are very different by day from what they appear by night, it is advisable to consider this in our remarks. The light diffused being yellow, this colour is rendered pale, and is frequently lost entirely; orange and red become warmer by this light; reds at night look more scarlet, as they borrow some of the yellow light; crimson looks brighter than by day; sky-blue acquires a green tint; dark blue, by absorbing the light, looks almost black; and there is often a difficulty in distinguishing between blue and green; purple becomes redder if it inclines to red, and darker if to blue. Blues, to look well by candlelight, should be of a bright tone; and if a dark blue *must* be used, it should have another of a lighter tone beside it, or be interspersed with white. A bright green in conjunction with blue will aid in lighting up the pattern, and is therefore useful for increasing the effect of a carpet or other coloured work by night-light.

SOAP

When fat of any kind, or animal or vegetable oils are exposed to the action of the caustic alkalies, they are found to undergo the peculiar change called saponification, or, in other words, they are converted into soap. Almost every kind of oil and fat has been used for the manufacture of soap; some of the most common being the oils obtained from the olive, the beech-nut, the seeds of the white poppy, hemp-seed, rape-seed, and the cocoa-nut; besides these palm-oil, almond-oil, nut-oil, tallow, and hogs' lard are frequently used. The alkalies employed to convert these substances into soap are either potash or soda: the first being employed when we wish

only to obtain a powerful and strong soap; the latter being used when a mild, hard, and cheap soap is required. These alkalies are neither of them used in the state in which they are ordinarily met with—which is that of carbonates. In this condition they possess but little power of acting upon fatty matters: it is therefore necessary to remove the carbonic acid before the change, by which fats are converted into soap, can be effected. This carbonic acid is taken away from the alkalies by the action of caustic lime. This is done by taking two parts of freshly burnt quicklime and then sprinkling some water on it. The lime rapidly absorbs the water, a quantity of steam rises from it, and the lime begins to crack in different places as we continue to add the water, until at last it falls into powder. The slaked lime is then added gradually to twelve pails of boiling water, in which three of carbonate of potash have been previously dissolved. The carbonate of potash, thus exposed to the action of caustic lime at the boiling temperature, parts with all the carbonic acid it contains to the lime, which is then converted into the carbonate of lime or common chalk, which being insoluble in water, falls to the bottom of the vessel. The mixture is then to be allowed to remain at rest for a short time, until all the carbonate of lime is deposited. The clear liquid, consisting of a solution of caustic potash in water, is then poured off for use. If the lime used has been good and well burnt, and the operation has been properly performed, effervescence ought not to be produced by dropping acid into the liquid. If any effervescence should ensue, it is a sign that the whole of the carbonic acid has not been removed from the carbonate of potash.

Carbonate of soda (common washing soda) is also rendered caustic in the same way, the only difference in the process being that only half the quantity of water will be required, in consequence of soda parting with carbonic acid with greater ease than is the case with potash. Of the two alkalies, soda is much more extensively employed than potash. This is partly owing to its cheapness, and also on account of the soap made with soda being more convenient for use in consequence of its hardness. The best hard white soap is made from soda, ley, and tallow. The fat is melted at a gentle heat, and the ley gradually added, the whole being continually stirred during the process. When the action of the caustic alkali on the fat is ended, salt is added to the liquid: the use of putting in the salt being to cause the soap to separate from the water, and collect at the top of the boiler.

The fire beneath the copper is now let out, and the liquid on which the soap is floating is removed from beneath it by a pump. The fire is then again lighted, and the soap beaten with long wooden poles until it acquires a proper consistence. Then the melting soap is removed into a kind of box, where it hardens into a solid mass. When cold, the block of soap, which is now perfectly solid, is divided into bars by means of a brass wire held at the ends by two men, and which is brought down through it. Soda soap, when first prepared, is found to consist of about sixty-one parts of fat, eight and a half of soda, and thirty and a half of water. Some portion of the water, however, that the soap contains will be lost by evaporation, or keeping it in a dry place. The quantity of water in the soap may be increased to such an extent that one hundred pounds of the soap may contain as much as sixty pounds of water. This may be done by keeping the soap in salt and water. Of course all this additional quantity of water is a loss to the purchaser.

In the common yellow hard soap, other substances are added. These principally consist of resin and palm-oil, the resin being added, not only on account of its cheapness, but also by reason of rendering the soap more useful for cleaning.

The use of the palm-oil is to conceal the smell of the resin. Kitchen-stuff is also occasionally used in the composition of common soaps, but it makes an inferior article. In making hard yellow soap, the resin, palm-oil, and fat are melted together before the ley is added.

If, instead of acting on the tallow with soda, we employ potash, we shall obtain a soft soap: the usual composition of soap of this kind consisting of about fifty-eight parts of fat, twelve of potash, and twenty-nine of water. A very cheap, though inferior soap, for common use in washing, may be made by throwing into a barrel pearlash, water, and fat. Any kinds of refuse fat or grease that may be left at table, or produced in cooking, being continually added to it. The barrel is then left out of doors, exposed to the action of the air and sun. After a time the alkali acts upon the fat, and converts it into soap. If particles of oil are observed floating on the surface of the liquid in the barrel, it indicates that sufficient alkali is not present to act on all the fat, and more must be added; but if it is found that the contents do not become thicker, more fat must be thrown in.

Ball soap is prepared in the North by boiling down in a copper a solution of alkali obtained from wood-ashes. When this, by the loss of water during the evaporation, has become almost solid, tallow is added, and the heat continued to be applied until the contents of the copper are converted into soap; the soap, when soft, is then made into the form of balls.

If the common hard white, or curd soap, while in a melted state, has a solution of the sulphate of iron mixed in with it, the sulphate becomes decomposed by the action of the alkali contained in the soap, and the black oxide of iron is deposited in streaks through its substance, giving the soap a mottled appearance. It is from the appearance which it now has, that it acquires the name by which it is known—"mottled soap."

What is known by the name of "honey soap" is manufactured from tallow and resin, no honey being used in its composition. The essential oil added to give it its peculiar scent is citronella.

Brown Windsor soap is hard white soap, scented and coloured by adding either burnt sugar or brown umber.

Sometimes a little glycerine is mixed with the soap, to render it milder in its action on the skin; it is then called "glycerine soap."

In the manufacture of perfumed soaps, the essential oils may either be added to the soap while it is being manufactured, or they may be mixed with the soap after it is made. In England the latter is the course usually adopted.

CLEANING COPPER.—When it is desired to obtain a clean, bright surface upon copper, it is customary, in all countries, to use nitric acid. In this way the desired surface is obtained with little trouble, and at once. There is, however, the objection that a considerable quantity of nitrous fumes are given off, and these red vapours are not only extremely disagreeable, but are very prejudicial to health. The production of these vapours may be avoided by adding a little solution of bichromate of potash to the dilute nitric acid. Experiment proves that this answers perfectly. The copper surface is brought out clean and bright, without any disengagement of vapours. On sanitary grounds, this method of operating deserves to become extensively known. In the manufacture of copperware, a great deal of this cleaning is done, and the frequent exposure to the fumes cannot but be very injurious to the workmen. In Naples there is a street of coppersmiths, and in pleasant weather, they carry on their work in the street itself, which is filled with workpeople plying their trade. The cleaning, especially, is done out-of-doors, and it is not uncommon to see quantities of red fumes floating upon the air, and poisoning it with hyponitrous acid, which irritates the throat and chest extremely, and, when inhaled frequently, cannot but lead to serious injury.

GUINEA-PIGS.

THE guinea-pig (*Cavia cobaya*), or, as the French call him, *cochon d'Inde*, is generally white, with spots of orange and black. He is a native of the Brazils, but now domesticated in most parts of Europe. The female is very prolific, bearing from four to twelve little ones every two months. The animal seems to hold a middle place between the mouse and rabbit tribe, but is much slower in its movements than either.

The wild or native guinea-pig is described as being an animal of corresponding size and structure, but of a uniform reddish grey or brown colour, paler on the under surface. It is called *aperea*, and is indigenous to the countries between the Plata and the Amazon. It abounds in Paraguay, and is also found at Buenos Ayres, inhabiting brushwoods by the banks of rivers, and feeding chiefly during the evening and morning twilight. A singular disparity exists in the productive powers of these animals in the natural and domestic state, the aperea being said to bring forth only one or two at a birth, and that only once a year. It is rather remarkable that the guinea-pig is never used as food in European countries, although the wild aperea is esteemed for that purpose, and is even pursued as game in its native countries.

It need scarcely be mentioned that this animal has no tail, as most persons have seen a guinea-pig and must have made the observation.

The management of guinea-pigs is very similar to that of rabbits; but they must not be allowed to live out-of-doors, even in the summer-time, unless they are protected from the change of weather by being placed under a shed, or in an outhouse; it would not be pleasant to keep them in the dwelling-house, for although they are very clean in their habits, they emit a disagreeable odour, which is not so much noticed out-of-doors in the garden.

It is a very nice plan to allow the little creatures their liberty as far as it can be safely managed. They may be allowed to run about a small garden well protected by a wall; and in extensive grounds a portion may be allotted to the guinea-pigs, enclosed in wire netting; but in the winter they must be very carefully protected from cold, as it must be remembered they are natives of some of the hottest countries in the world.

The guinea-pig is not a strong or hardy animal, but a gentle, timid little creature, the hair glossy and beautifully marked with orange, white, and black; the dark-coloured guinea-pigs being considered the most rare and handsome.

The hutch for a pair should be made similar to that for rabbits, about two or three feet long, and a foot and a half wide, with one-third partitioned off for their sleeping apartments; and if in the summer months they are allowed liberty in the open air, the hutch must be placed in one corner of the enclosure.

Guinea-pigs feed on many kinds of herbs, and are very fond of parsley; the tops of carrots, dandelion, sow-thistle, and plantain fruit may also be given to them. It must be remembered that these animals especially like apples, also bread and milk, and they take a little water. Oats should be given to them regularly twice a day, but sparingly; tea-leaves they may have occasionally, and they will be found to enjoy them very much.

When selecting a position for the guinea-pigs' house, it must be remembered they do not like much light, therefore, when in the open air, the enclosure should be made in a shady spot, well sheltered by trees and planted with shrubs.

GUINEA-PIGS.

DOMESTIC MEDICINE.—XLII.

HYSTERICS OR HYSTERIA.

THIS is a subject that calls for some exposition in a work on domestic medicine; albeit some of our readers may think that it is either too familiar or too unimportant to need notice. The word is derived from *Ὑστέρα*, from a supposition that hysterics proceeded from some disorder peculiar to females; a somewhat questionable supposition,

though the complaint or disease is much more common in women than in men.

The ordinary phenomena of hysteria are, we think, familiar enough; the deeper phenomena of the hysterical condition are not so familiar. Hence it happens that hysterical patients are often very badly treated. They are misunderstood; their complaints are not thought to be deadly or dangerous; on the contrary, they are thought to be fanciful, if not feigned, and the patients receive only scant attention at the hands of their friends or even their doctors.

Hysterics may be shortly defined as an immoderate exhibition of emotion on a slight cause, and accompanied with sobbing, or crying, or laughing, or each alternately. Like all short definitions of complicated states, this explains and expresses very little, and we will try to supplement it by some description of the hysterical *constitution*. For it is not everybody that could be hysterical. The complaint is almost, but not entirely confined to women; but there are hysterical men. There are men that apparently should have been women, and *vice versâ*. But all women are not hysterical. There is a certain kind of constitution of body and mind which we may call the hysterical constitution. And it is characterised by a few leading features. We shall do everybody concerned a great service by being plain in our statements. Hysterical people, then, are characterised by, first, *great physical sensitiveness;* secondly, *love of sympathy;* thirdly, *want of will*, or *perverted will;* and we must add, fourthly, *in some cases a certain deceitfulness.*

The ordinary fit of hysteria is characterised by sobbing, crying, or laughing immoderately. In some cases these are slight and soon controlled; in others they last for an hour or two. The patient feels as if she would be choked by a sort of ball or foreign body in the throat, and a great tightness across the stomach or chest. In very severe cases there may be convulsive movements of the eyelids and other muscles of the face, and even of the limbs and body, which may take several grown-up persons to control them. It will generally be found that though these motions are apparently very tossing and violent, there is a certain method in them. The patient does not hurt herself very much, she does not fall suddenly, or bite her tongue, as in epilepsy; and the more she is restrained the more violent will be the movements. In other cases there is a drowsiness or coma. The patient lies in a quiet but profound sleep. You may pinch her skin, or even put a pin under the nail in some cases, without the patient resisting, or put snuff up the nostril without producing sneezing. Answers to questions are either not given or given in whispers. This is the kind of state that constitutes what is called "trance," and many cases of mesmerism are apparently nothing more than a peculiar condition of the nervous system allied to the hysterical attack. It may continue for hours or days. Though so apparently insensible to pain or to the voices of friends, they are not always completely in that condition; for a very hot iron, or a prolonged application of the cold *douche*, would disturb this state. In other cases, instead of convulsions or coma, there is a kind of delirium, characterised by wild excited talk and sometimes by violence. There may be insane delusions, or spectral illusions. Such is the nature of hysterical attacks, ranging from mere excess of emotion to trance or delirium and convulsions. Of course, the milder forms are those chiefly met with.

Now, as we have already remarked, hysterics imply a peculiarity of constitution. And hysterical people are very sensitive; very fond of sympathy; they want will, or their will is perverse; and sometimes there is a certain deceitfulness about them. 1. As to the *sensitiveness.* They feel all their sensations acutely, and they magnify them. They often expect other people to think as much of them. The slightest touch will make them cry out. Observe, it is their own sensations they feel and talk about, and their painful ones. They are not very considerate generally for others; they are too much taken up with their own pains for that. The pains felt may really be very severe; they may mimic very serious diseases, as disease of the knee joint, and many a leg has been removed for hysterical pains of the knee joint that ailed nothing more. 2. *Love of sympathy.* Nothing is more gratifying to the hysterical patient than to be the object of attention, and fuss, and sympathy. To get this, every pain is described vividly, and every sympathetic remark of the listener is rewarded with fresh descriptions. 3. *Perverted motion* is shown in spasms or convulsions, and, in certain cases, an inability or indisposition to move a limb or a muscle. The patient fancies she cannot walk, and she cannot walk because she fancies she cannot, and is confirmed in her belief by the pleasant sympathy of friends. She really can do things that she does not always admit she can do. 4. There is often in bad degrees of the hysterical constitution a *deceitful* or *fraudulent element.* The patient will very frequently pretend to live without food, all the while taking it surreptitiously; or to do without performing the offices of Nature, all the while performing them furtively.

It will be seen from this description how complicated is the hysterical constitution. Not only so, it will be generally characterised by physical weakness, by paleness, by inability to do much work without getting fatigued. The body may be growing quickly, the passions may be undergoing development; and one or other of the functions of the body may be irregular.

Causes.—The causes of hysteria are, first, the possession of a female type of constitution—sensitive, weak, and emotional. Secondly, a combination of causes that at once excite the mind and depress the body; fatigue; pain; unwise attention to one's pains and misfortunes; diseases that weaken the body and make the blood pale. These are the causes of hysteria, which occurs for the most part within the ages of fifteen to forty-five, especially at the early part of this period.

Treatment. Let not our description of the hysterical state lead readers to think that it is not one of reality, or entitled to sympathy and help. There has been too much of this error in regard to hysterics. But while it is right to sympathise with hysterical persons, sympathy should be very wise and not very demonstrative. Sympathy should be accompanied with sense. The patient's complaints should be fairly considered. Anything obviously wrong in her health should be amended. If she is weak, she should have tonics, or change of air, and good food; if she has pains they should be relieved. Every reasonable attempt should be made to make hysterical people think more of other people's complaints and less of their own. At the same time it must be remembered that all these complaints have some foundation in sensitive nerves, in bodily weakness, or in some fault or irregularity of the system, which must be rectified. Young people will often have their hysterical weakness cured by quietness, by sleep, by proper food, and by some pleasant occupation which distracts their attention. And it should be well impressed on hysterical girls, that by a good strong effort of resolution they can often resist an attack, or by thinking too much of themselves and of sympathy they may bring an attack on.

For the immediate relief of a hysterical attack it is safe to administer some such medicine as the following:—Spirits of ammonia, two drachms; camphor water, six ounces—mix. A sixth part to be taken every three, four, or six hours. A little cold water should be dashed on the face and head. If there is any particular irregularity or appearance of local disease, a medical man should be consulted without further delay.

SOCIETY.—II.

ETIQUETTE OF VISITING, ETC. (*continued from p. 111*).

It usually happens that, after the customary calls have been exchanged between persons recently acquainted, invitations are given to meet at each other's house. People who keep establishments equal to the occasion generally ask the intended guest to dinner; and if the civility be offered to an individual in the same position of life as the host, the proffered entertainment should be accepted. At the same time, it does not necessarily follow that such invitations must be invariably accepted. There are many circumstances in life which make it both right to offer and proper to refuse such acts of courtesy. The chief reason for accepting and refusing is perhaps found in the old adage, "Feast make, feast take." People who, as a rule, do not give formal dinners should be careful how they accept such invitations; for, let kind-hearted folks say as they please to the contrary, persons who are always ready to dine at a friend's table and never give a dinner in return cannot fail to appear to disadvantage, if not in the eyes of their host and hostess, at least in the opinion of the *habitués* at the same table.

Amongst the few occasions when a formal invitation can be accepted without entailing the necessity of a return of the courtesy within a reasonable time are the following:—Travellers when passing through a strange neighbourhood, and having no establishment of their own on the spot, are expected to accept such invitations. Also, when the giver of the proposed repast is the superior in station to the invited guest no similar return is looked for. Unmarried men likewise are permitted to accept all invitations without expectation of return, but from the day that bachelorhood is exchanged for the wedded state the same rule no longer applies. As married men, they are supposed to have establishments suitable to the demands on their position in life. If this happy state of things should be denied them, a sense of self respect demands that they should decline civilities that it is impossible adequately to return. There is always a way of declining under such circumstances, showing, at the same time, a sense of the appreciation of the compliment paid. Plain candour may perhaps suggest that a simple avowal of inability to give ceremonious dinners lies at the root of the objection to accept invitations of the kind; and if consistency of action be faithfully carried out in other details of the apologer's mode of living, no one would feel affronted by a well-meant refusal of any invitation. We shall have occasion in a subsequent paper to revert to the subject of dinner-giving at greater length; for the present we must return to the main object of the present article.

Luncheons are a less ceremonious mode of bestowing and accepting hospitality than the formalities of a dinner admit of. A luncheon party is one of the most agreeable institutions of social life. Each year, as the hour of dinner becomes later, luncheons increase in favour, and afford opportunities of receiving visitors in the most cordial and unrestrained manner. The mid-day luncheon is, in fact, now-a-days, a good plain English dinner, than which no repast is more enjoyable, wholesome, and unpretentious. This form of visiting is especially suited to ladies, who are thus able to preserve intimacies that would be in danger of becoming chilled if entirely dependent on a chance morning call or the laborious ceremony of a grand dinner. At luncheon parties the feminine element usually largely predominates, or is relieved chiefly by the presence of the unemployed and youthful male members of the family. The gentlemen, if present, do not feel themselves compelled to bestow their presence on the company longer than the time that is actually spent at table. They need not, unless they please, appear till the repast is served, nor remain at the table after their appetite has been satisfied. When, however, the mistress of a household receives gentlemen to luncheon by invitation, the husband or head of the house is expected to be present, and to remain with his guests during the visit. Receiving gentlemen at luncheon, by invitation, and in the absence of the master of the house, is considered bad taste, and is not a recognised custom by ladies.

Unless especially invited to prolong the visit, the guest generally takes leave at the conclusion of the meal. In accordance with this rule, ladies visiting at luncheon do not remove their bonnets, nor lay aside any portion of their out-of-door costume, save gloves or any loose wraps. In short, visitors are supposed to act as if going as soon as the repast is ended.

Servants do not usually wait at table during luncheon after the removal of the joint. The reason of their absence is to enable the kitchen dinner to take place during the time in the day usually most free from interruption. Before leaving the dining-room the servants should place everything likely to be wanted on the table and sideboard. The comparatively informal character of luncheon permits visitors to wait upon themselves, and every accessory of the table should be ready at hand.

At the conclusion of the meal an opportunity is afforded for visitors desirous of retiring to take leave of the host or hostess. If solicited to remain, the company withdraw to some reception room.

The dress worn by ladies at luncheon is that of ordinary walking costume.

Tea as a formal meal is going out of fashion; still, many persons, who have neither the inclination nor the means to give set dinners, sometimes make the partaking of the favourite beverage an occasion for seeing friends in an unceremonious manner. Not unfrequently, also, a "meat tea," by invitation, is made to some extent to stand in lieu of a dinner. The repast is then generally composed of savoury cold meats, potted viands, preserves, pastry, cakes, and any description of made dish that may be easily served at table. Tea is certainly present as a beverage, but it is usually poured out at a sideboard or separate table. Light wines are placed on the table at "meat teas," to which the guests help themselves, whilst tea only is handed round in cups by the servants in attendance.

Persons when invited to tea stay longer, if so disposed, after that meal than at luncheon. The reason is obvious. In the middle of the day most persons have some daily occupations to engage their attention, and are glad to be set free by the retirement of their visitors as soon as possible, whilst after tea, the evening being advanced, people are supposed to be at leisure. This, however, does not render it arbitrary for a visitor to spend a whole evening at one house, unless inclined to do so. It may happen that no after amusements are provided, or that the host or hostess is engaged elsewhere. In any case, the hostess generally gives some intimation of her plans on leaving, or previous to leaving the table, and the visitor prolongs or terminates the visit accordingly.

The dress usually worn at tea may be either full morning dress or evening dress, according to the engagements that may follow, or the character of entertainment itself. At a *thé dansant*, for instance, *i.e.*, a tea, with dancing for after amusement, a suitable dress for dancing would be selected—not so elaborate as a ball dress nor so plain as an ordinary walking costume.

Supper parties are simply late dinners, shorn of fish, soup, and dessert as separate courses. At suppers most of the viands are placed on the table at the same time, and servants attend throughout the repast. If a certain hour is named at which supper is to take place guests should observe punctuality.

Staying at houses is the most intimate footing which acquaintances can be upon towards each other. An invitation to visit a friend at his or her house is generally

understood to extend over three days. The guest usually arrives in time for dinner on the first day, and leaves before dinner or after luncheon on the third. Of course, the above stay is open to the most elastic extension upon the expressed wish of the host or hostess. But as no error in social life is so seriously to be guarded against as that of outstaying one's welcome, it behoves guests to be watchful not to exceed the ordinary limits of hospitality. It is very desirable that in giving invitations the hostess should intimate the probable duration of the expected guest's visit. Thus, "Come and stay with us a few days" may mean the term above stated, whilst "Come and stay with us for a few weeks" unmistakably points to a longer period. An invitation to pass Easter, Christmas, Whitsuntide, or any holidays commemorative of Church festivals, is supposed to extend, strictly, over such time as there are special services appointed by the Church for the observance of those festivals. In a general way, a week at either of the seasons alluded to would be considered a fair length of visit.

All invitations to stay at a house, even if instigated by the host, should be given by the hostess, with her direct sanction, and in her name. If it should happen that the guest is not personally acquainted with the lady, a preliminary call is necessary on the part of the latter. Or if a personal visit be impossible, the lady should write to the intended guest, and express her regret at not being able to afford herself the pleasure of a personal acquaintance previous to the time appointed for the meeting, and enclose card.

If the house at which the guest is expected should be in the country, it is customary for the hostess either to send her own carriage or to hire a fly to convey the guest and luggage to her residence. On leaving the house the guest is generally expected to find his or her own mode of conveyance to the nearest station, provided a carriage be not kept. Even in the latter case it is well-mannered for the guest to propose sending for the required vehicle.

It is not necessary for the lady to go to a station to receive her guest. Gentlemen, if not otherwise engaged, sometimes undertake the office, but it is pleasing for the hostess to appear in the hall to welcome the newly-arrived visitor. Having caused the visitor to be conducted to his or her sleeping apartment, the host or hostess awaits in the drawing-room the re-appearance of the guest. The servant appointed to attend upon the visitor is the medium through which the latter obtains any requisite information respecting the habits of the family and the locality of the apartments. To all intents and purposes the attendant alluded to may be consulted on such matters as one's own servant, but a visitor should be careful to confine such inquiries to the most commonplace and essential matters. If the guest takes a personal attendant into the house, all information is sought exclusively through that servant. On retiring to rest it is customary for strangers to ask the hostess at what hour the family assembles for breakfast. If in reply information is given that prayers take place at a certain hour, the guest should make it a point of duty to be present at the time named. And so forth throughout the day. Whatever may be the established customs of the household of which visitors are for the time being members, the most scrupulous care should be taken to blend with the family and to fall into their ways. If the restraint be found irksome and the habits uncongenial, it is far better to draw a visit to an early close than to live in discord, so to speak, with the prevailing harmony of the domestic circle.

All expenses whilst under a host's roof are generally defrayed by the host. Travelling expenses to visit any places of interest in the neighbourhood are an exception to this rule.

As far as it is possible, guests when staying in a strange house should amuse themselves either by joining in the general pursuits of the family, or by occupying themselves during the morning hours of the day with personal employment, such as letter-writing, needlework, or reading. It is most desirable that they should give the host and hostess to understand that the latter are free to pursue their own occupations. In many well-conducted establishments the host, and not unfrequently the hostess, are invisible during the greater part of the day, and their absence is not felt. Full range is given to visitors to follow the bent of their inclinations, and ample liberty is likewise granted to the principals of the household to pursue their ordinary occupations.

On leaving a house where one has been staying, the question of feeing the servants becomes of urgency. In several large establishments of England fees to servants are openly prohibited; in others it is to be regretted that the custom is equally encouraged. Servants in the latter case are told when engaged that their wages are a certain sum, but, as many visitors frequent the house, the "vails" are considerable. If a guest has reason to believe that in either case the principle is observed, he is in duty bound to act in accordance with the views entertained by the host. In the case of payment, the average charge for attendance at hotels will be the best guide. As a general rule, however, only the servants that are in immediate attendance upon the visitor have a right to expect "vails."

HOUSEHOLD LAW.—XVIII.

RIGHTS OF CITIZENSHIP (*continued from p. 154*).

OF the Reform Bill of 1867, mentioned in our last paper, we will now give as succinct a summary as possible. It is divided into three parts:—

I. FRANCHISE.—*Boroughs*: All householders rated for relief of the poor; lodgers, resident for twelve months, and paying £10 a year. *Counties*: Holders of property of the clear annual value of £5, and occupiers of lands or tenements paying £12 a year. At a contested election for any county or borough represented by three members, no person to vote for more than two candidates; in London to vote for three only.

II. DISTRIBUTION OF SEATS.—Boroughs with less than ten thousand population to return one member only. Manchester, Liverpool, Birmingham, and Leeds to have three members each instead of two. Certain new boroughs were created, a representative was given to the University of London, and the members taken from petty boroughs (with populations of less than ten thousand) were given to the new constituencies, and to supplement the number of members in boroughs not yet adequately represented.

III. SUPPLEMENTARY PROVISIONS included arrangements for ascertaining the boundaries of electoral districts by means of boundary commissioners, who were required to determine on inspection the limits of particular districts; for the registration of voters on the basis of the list of ratepayers, and for increasing, where necessary, the number of revising barristers—officers created by the Act of 1832 for the purpose of scrutinising the names on the register, and striking them off or allowing them after complaint heard and determined. It was also provided by this Act that Parliament should not be dissolved on any future demise of the Crown; and that members holding offices of profit from the Crown, need not vacate their seats on acceptance of another office.

By this Act "household suffrage, pure and simple," the passing of which had been looked upon as an impossibility, was established. The manner in which the compound householder was abolished under this Act, and afterwards restored, was described in the last paper.

In order to secure independence in voting, and to promote the more peaceful conduct of elections, and also as a preventive of bribery and corruption, the Ballot Act of 1872 was passed. By it the system of public nomination is abolished, and the British hustings, with its tumult and riot, has become a thing of the past. The voting takes place by means of a ballot paper, which contains a list of the candidates, and is given to the elector by the presiding officer. The elector then retires, and places his mark against the name of the candidate or candidates of his choice; the paper is then folded up, and deposited by the elector in the ballot-box.

It remains only to observe that the franchise is given to all male subjects of the Queen satisfying the conditions stated in the Act, without reference to rank or creed. The disabilities which at one time attached to persons professing certain religious beliefs have been abolished, and there is now no impediment in the way of either elector or candidate for the post of member of Parliament. In 1829 the Roman Catholic Emancipation Bill was carried, and persons belonging to the Church of Rome were relieved from all those disabilities which had hitherto debarred them from seats in the Legislature, commissions in the army or navy, and from any post under Government. In 1828 Dissenters received a like measure of justice, and in 1859 Jews were for the first time allowed—the oath of abjuration having been altered—to sit in the House of Commons.

Formerly, what was known as a Property Qualification was required for members of Parliament; but by the 21 and 22 Vict. c. 26 this property qualification was entirely abolished.

Freedom of Conscience—that is to say, freedom to profess and exercise any religious belief—has since the dates above mentioned been accorded to all persons, whatever their creed may be. The sovereign is by the Act of Settlement precluded from being anything but a Protestant, but all subjects, from the highest to the lowest, may profess what they think fit, so long as their religion does not in practice violate the laws of the land—*e.g.*, require them to offer human sacrifices. There is nothing to prevent Jew, Christian of whatever church, deist, or atheist from practising rites or neglecting rites; the utmost freedom of conscience prevails, and is secured by Acts of Parliament. A very few disabilities remain. The church patronage of Roman Catholics is exercised for them by the Universities, and the House of Lords, still requiring its members to swear "on the true faith of a Christian," is shut to Jews. As to the Universities, the 34 Vict. c. 26, proceeding on the preamble that the benefits of the Universities of Oxford, Cambridge, and Durham, and of the Colleges and halls subsisting therein, as places of religion and learning, should be rendered freely accessible to the nation, and that by means of divers restrictions, tests, and disabilities many of her Majesty's subjects are debarred from the full enjoyment of the same, makes various provisions for the removal of such restrictions, tests, &c.; and the 36 and 37 Vict. c. 21 has made similar alterations in the law with regard to the University of Dublin and Trinity College, Dublin.

Freedom of Speech follows naturally upon freedom of thought, but it has at all times been more circumscribed. The tongue is a little member, and boasteth great things. It has been found absolutely necessary to restrict its operation by laws of slander and libel, but within these laws the tongue has free ambit. This privilege has been one of gradual growth, and one which has not been won without the most sustained and strenuous exertions. Slander is an injurious speech spoken; libel is an injurious statement written. The basis of the law in either case is the maxim that no one shall use his freedom to another's hurt, and if he does, the injured man shall have his remedy against the injurer. Thus it is legally slanderous, and therefore actionable, to say anything of a man that shall put him in peril of the law, as to accuse him of some crime, to say he has committed murder or felony; to say that which is likely to exclude him from society, as to report that he has an infectious disease; anything that may injure him in his trade or profession, as to call a tradesman a bankrupt, a physician a quack, a lawyer a pettifogger, a judge corrupt. Mere abuse the law will not notice, as when a man is called a thief, a fool, or a humbug, but with no intention to impute actual theft or fraud; mere scandal, also, the law will not regard, unless special damage can be proved. In that case the person injured has an action. So that if a woman can show she has lost a marriage through an imputation of unchastity, or a man can show that he lost business through some one calling him a fool or humbug, the law will give redress. For the rest, however, the law says, "Hard words break no bones."

When injurious statements are written, the law looks upon them with great disfavour, and allows less margin than in the case of slander. People are not supposed to write in a passion, and words which if spoken might be excused on the ground of hastiness, assume a malicious complexion when deliberately written down. All matter actionable as slander is actionable as libel, and in addition all contumelious matter which tends to degrade a man in the opinion of his neighbours, or to make him ridiculous, is reckoned libellous. Some of the decisions have gone very far; thus, it was held libellous to have written of Lord Redesdale that he was a "stout-built special pleader," and of Lord Hardwicke that he was "a sheep-feeder from Cambridge;" but, as a rule, the limits of the law are narrower than these. It was held to be a libel when Colonel Calthorpe wrote of Lord Cardigan that the earl's horse at the Balaklava charge "galloped off with him to the rear," under circumstances which made it apparent that the writer meant to say Lord Cardigan fled intentionally. To write of an officer that he is a coward is libellous, because that is injurious to him in his profession, but it is not necessarily so of an unmilitary person—*e.g.*, a clergyman.

Certain matters are prohibited—by the laws of sedition and treason—from finding utterances either orally or in writing; and blasphemous statements are also forbidden as contrary to public morality, and derogatory to the honour of the Most High.

Bounded by these restrictions, which have been found salutary, the utterances, whether oral or written, of all British subjects are protected by the law, and may take place at the bar, in the pulpit, on the platform, through the press, or by manuscript communication.

Certain matters are privileged from the operation of the libel and slander laws, if good faith have been observed. Thus, an unfavourable character of a servant is generally considered privileged, though recent decisions make this doubtful, and it is safer to refuse giving any if a good one cannot be given. Words spoken in Parliament are absolutely privileged, however injurious they may be, and so also are words spoken by judge or counsel in the course of a trial.

Till within a few years, it was not allowed to plead in defence on an action for libel that the matter complained of was true. The courts held that "the greater the truth the greater the libel," and directed the jury that the statement being true was no justification to the defendant. Now, however, such a plea if proved is valid, provided, also, it can be shown that it was for the public advantage the libel should have been uttered.

The jury is now judge of whether the words complained of come within the meaning of libel as defined by the court. Formerly the court adjudged a thing to be libel or no libel, the jury being only judges of whether the defendant used the words.

There are two ways of proceeding against a libeller—at the civil court by action for recovery of damages, or at the criminal bar by indictment with a view to fine and imprisonment.

PRINCIPLES OF COLOUR, AND RULES FOR THEIR ARTISTIC APPLICATION IN DRESS, FURNITURE, ETC.

II.

Colour in its Relation to Dress.—It is not our intention in speaking of this delicate and important subject to attempt establishing a *beau ideal* of dress, because it appears to us that there is not only a perfect style of costume adapted to the various classes of figure and face, but for almost every individual of which they are composed. To enter into a description of these styles would be to embark in a hopeless and endless task, for, to be complete, they must be as infinite and varied as Nature herself. Our limits may be much more advantageously occupied by an inquiry into general principles, leaving their application, in most cases, to our readers' taste, which, however, we shall endeavour in our progress to correct, advance, or confirm.

It has been asserted that the dress of the English ladies is, generally speaking, inferior to that of foreigners. Colours the most heterogeneous are often assembled on the same person, and on the same figure may sometimes be seen all the hues of the peacock, without their harmony. The influence of some neighbouring tint, the position of the colours combined, their relative stations, and the materials adopted for each, frequently tend to produce these effects. The colour of a single rosette often destroys the general tone and appearance of the dress, and occasionally it may be managed with such skill as to blend the tints of two or more principal parts of the costume, which, without some such mediation, would render each other obnoxious to the eye of taste. We frequently see a light blue bonnet and flowers surrounding a sallow countenance, or a pink opposed to one of a glowing red; a pale complexion associated with canary or lemon yellow; or one of delicate red and white rendered almost colourless by the vicinity of deep red. Now, if the lady with the sallow complexion had worn a transparent white bonnet; or if the lady with the glowing red complexion had lowered it by means of a bonnet of a deeper red colour; if the pale lady had improved the cadaverous hue of her countenance by surrounding it with pale green, which, by contrast, would have suffused it with a delicate pink hue; or had the face

> "Whose red and white
> Nature's own sweet and cunning hand laid on"

been arrayed in a light blue or light green, or in a transparent white bonnet with blue or pink flowers on the inside—how different and how much more agreeable would have been the impression on the spectator.

It is quite certain that the same colour which imparts a liveliness and brilliancy when used for light embellishments and in a small quantity, becomes vulgar, showy, and disagreeable if adopted for the most extensive portion and leading tint of the attire; and, on the other hand, the delicate or neutral colours, which look well when displayed over a considerable surface, dwindle into insignificance if used in small detached portions for minor ornaments. We would observe, that it is more in accordance with the simplicity which should regulate every part of the dress of children, not to introduce a variety of colours into their habiliments; as, for instance, the trimming of a cap or bonnet, or, in some cases, a sash, may be of some pure colour; but all such incongruous mixtures as a bright blue bonnet with pink or yellow ribbons, which are not unfrequent on children's dress, should be systematically avoided.

As the optical effect of white is to enlarge objects, and that of black to diminish them, large women should dress in black or dark colours, and small in white or light colours. Large patterns make the figure look shorter; longitudinal stripes, if not too wide, add to the height of a figure; horizontal are altogether objectionable. How often have we seen a dress, exquisite in all its parts, utterly ruined, by the wearer, as a finishing touch, drawing on a vulgar glove! Gloves should be in the most delicate tints that can be procured: their colour has always an effect upon the general appearance; one kind of hue must not, therefore, be indiscriminately worn, or, however beautiful it may be in itself, obstinately persisted in when every other part of the attire is constantly subject to change. Much mischief of a similar nature is frequently done by feathers, flowers, ribbons, shoes, and articles of jewellery. It is not enough that a flower is pretty; it must harmonise with, or form a pleasing contrast to, the other parts of the costume. It is the same with jewellery. Pearls, for instance, will suit those kinds of dresses which rubies would spoil, and *vice versâ*.

In the harmonising of the colours used in dress with the tint of the complexion, the shades of difference are often so minute, that although we may offer hints for the guidance of the few who are of any decided style of feature or complexion, we cannot do so for the greater portion, who, though by no means less attractive, may be said to belong to no class, but unite the peculiarities of many.

There are two types of beauty—the fair and dark. In point of colour, light hair may be considered as subdued orange, modified in hue accordingly as the yellow, the red, or the brown prevails. When the first colour predominates, the hair is said to be *flaxen* or *golden*; when the second, it is called chestnut, auburn, or even red; and when the third prevails, the hair is simply light, or light brown. The first two have always been favourites with poets and painters, especially in sunny Italy. The colour of the skin of fair persons may also, with the exception of the carnation tints, be considered as subdued orange; the contrast arises from the blue or grey colour of the eyes. Chestnut and auburn hair are often accompanied with hazel eyes, and in this case there is no contrast, but a sort of natural harmony of the skin, eyebrows, and lashes. In brunettes, the hair and eyes contrast in tone and colour with the complexion, which is generally redder than the blonde. Between these extremes there are an infinite number of gradations. Sometimes the black hair of the dark type is united with the blue eyes and fair complexion of the blonde.

There are, it appears, two methods of setting off or heightening a complexion: first, by a decided contrast, such as white drapery, or one of a colour exactly complementary to the complexion, but not of too bright a tone; such, for example, is a green drapery for a rosy complexion, or a blue drapery for a blonde. Secondly, by contrasting a fair complexion of an orange hue with a light green drapery; a rosy complexion with a light blue; or a canary yellow, or straw-colour, with certain complexions inclining to orange. In the last case the complementary violet neutralises the yellow of the carnation which it brightens. When the complexion is too highly coloured, and the object is to lower it, a black drapery can be used, or one of the same colour as the complexion, but much brighter. Contrasts of colour and tone are still more necessary for black or olive complexions; for these, white draperies or dresses of brilliant colours, such as red, orange, or yellow, should be selected, as it is too decided to be disguised, either by lowering its tone or neutralising it. It will be seen, therefore, that the fondness of the West Indian negroes for red and other brilliant

colours may be accounted for according to the laws of the harmony of contrast; and that it is as decided an evidence of good taste as when a fair European with golden hair and blue eyes appears in azure drapery.

White veils, lace, and gauze, by means of their folds being greyish in effect, are useful in softening and harmonising. The semi-neutral tints of the Quakeresses are also very becoming to the complexion. We may add, that the general effect produced by artificial light is to warm the complexion (which it does by increasing the orange tints), to strengthen and darken the shadows by the contrast of light and shade, and to increase the brilliancy of the eyes by the masses of shadow which it casts around them.

Except for the army and navy, colour—in our own days and country—for male dress seems banished to the servants' hall. Here, however, the laws of harmony should be as carefully preserved as in ladies' dresses; the colours of a livery should be as well contrasted as those of a court suit. It has been said by Ruskin that the love of colour is highest among savages; but without going quite so low in the scale of civilisation, there is no doubt that the peasants of Brittany, who are the rudest and worst educated in France, evince it very strongly, for even the dresses of the men on fête days are quite artistic in arrangement. Jackets of light blue, violet, and green cloth or velvet, fitting tightly, are trimmed with rich gold and silver lace and brass buttons; and their broad-brimmed hats are gay with artificial flowers or coloured chenille. The women are still more splendid, and seem fond of coarse-grained aprons having a broken black stripe over an orange ground.

The Spanish women make great use of black in dress, and in Philip's pictures we find black and yellow, black and orange, and black and red, used with great effect. The Italians place blue and deep crimson together very effectively.

The Arabs and other Orientals dress in very picturesque attire—white or striped raiment, with gorgeously tinctured turbans, and scarfs for the waist, silk fabrics from the Damascus looms, chosen with that wonderfully correct taste which Easterns possess in the arrangement of colours, so as to harmonise with each other and with the dark skin of the wearers. Even in playthings for their children they show great artistic judgment in harmonising colours—one of these was an orange, into the surface of which they had cut a mosaic pattern, leaving the orange peel as a ground, and filling in all the triangles and other hollows with various brilliant colours, than which (comparing small things with great) nothing could be found more harmonious in the mosaics of Italy, of Damascus, or on the walls of the Alhambra itself.

Blue appears to be the most favourite of all colours in the lower grades of society. A licensed beggar in Scotland, called a "bedesman," or "gaberlunzie," was so privileged on receiving a *blue* gown. Pliny informs us that blue was the colour in which the Gauls clothed their slaves; and *blue* coats for many ages were the liveries of servants, apprentices, and even of younger brothers, as now of the Blue Coat Boys, and of other Blue Schools in the country. Women used to do penance in blue gowns.

While on the subject of dress, we may offer a few observations on colour in relation to photography. Colours do not come out in the same depth of light and shade as they appear to the eye—for example, fair hair comes out dark, blue eyes very light, and an orange dress nearly black. The knowledge of this may save the sitter the surprise and disappointment so often experienced in photographic portraiture. White dresses should be avoided, and light blue, violet, or grey worn instead, which will come out nearly white. Red, yellow, and green come out very dark; and the hair should not be too glossy, nor the lips wet, as this produces white patches.

HOUSEHOLD DECORATIVE ART.—XXXVIII.

CASTING FROM NATURE.

As a supplement to our articles on "Modelling in Clay," we propose to give some instructions in a very beautiful and interesting, though, in an artistic sense, inferior art—that of casting natural forms direct from Nature. As a means of decoration it may be applied to almost all the purposes which we suggested as suited to modelling in clay, and it possesses the additional advantage of demanding for its practice no artistic skill, and of being within the capacity of any person who will bring to it a little patience and neatness of hand.

The most simple and easy objects from which to take casts are leaves, and they are, at the same time, the most beautiful when cast. But the art can be employed on many other subjects. Most fruits and berries, and small animals can be reproduced by it; and even the face and other portions of the human figure have been favourite subjects with the amateur moulder in plaster. We shall, in the course of our paper, treat of this last branch of the art; but our chief aim will be to show in what manner casting in plaster from Nature can be made to contribute to the embellishment of the home.

We shall best explain the method of procedure in casting foliage, if we first take a single leaf, like that of the common bramble, shown in Fig. 1. On a table or board some fine dry sand must first be spread, and upon this the leaf is to be laid. It will then be seen that, as Nature is not accustomed to make her leaves in one level plane, it will not lie flat upon the sand, but only touch it in two or three places. As we desire to reproduce all the natural curves, it will be necessary to support it in the hollow parts, otherwise the weight of the plaster, when poured upon it, would force it down flat; we must, therefore, take some small instrument, as a spatula, the end of a spoon, or a thin knife, and pack beneath it till every part rests on a bed of sand. A thin inner mould of coloured plaster must now be poured on. At page 22, vol. ii., are given full directions for mixing and moulding in plaster, and these we need not repeat, but in this case the leaf should be dry and not sprinkled with water before pouring on the inner mould, as advised with the clay model. Over the first mould clay-water must be brushed, and a thick outer mould of coarse plaster formed. When this has set, the mould can be lifted altogether from the sand, and the leaf will be seen adhering to its lower surface, and, from most parts, can be pulled out without difficulty; at the edges it will probably stick a little in places, by reason of the mould overlapping, and, where that is the case, the superfluous plaster can be carefully cut away; any sand which adheres to the mould can be brushed off, and the mould should be placed in water for a few minutes, to prevent the cast sticking to it. It can then be filled with plaster (which should be superfine, if a very delicate cast is wished for), and, when set, the mould can be chipped from the cast in the usual way. The amateur, when he first sees the leaf freed from its mould, will not fail to be struck with the beauty of his work; every vein, marking, and serration, will be exactly represented in the brilliantly white material, and he will be enchanted with the grace and delicacy of its structure, of which, when accompanied with its natural colour, he could have had little conception.

In this manner any single leaf may be cast, or, with a little extra care and patience, any combination of leaves. Generally, however, if a wreath or series of leaves has to be cast it will be found better to cast them separately and fit them together afterwards. By the above process the forms of the simpler flowers may also be reproduced, as well as fruits and berries. The latter subjects however, will frequently require to be shown so much undercut as to render it difficult to remove the real fruit or berry from

the mould, and this difficulty will have to be obviated by making the mould in two or more pieces, in the manner directed in the articles just alluded to.

Among small animals, those are most easily cast which are smooth, such as efts, snakes, and fishes. Before moulding such things, a little oil should be brushed over them to prevent the plaster sticking, which, otherwise, it is liable to do, and they may then be readily cast. Birds, and animals clothed with fur, it is more difficult to manage, and they are less useful in decoration. To such more highly organised forms it is almost impossible to give the appearance of life, and to represent them as dead is not generally pleasing, while an eft or a lizard may easily be placed and cast in a living attitude, and may be introduced with good effect as though creeping among foliage.

In casting from the human figure the use of sand or any substitute for it may be dispensed with. For a hand, a soft pillow over which a towel has been laid and afterwards a piece of paper, will be sufficient, and no other packing will be required; for the hand and the pillow can be so made to adapt themselves to each other as to leave no space between them. A little oil must be rubbed over the skin, and the hand must be kept *perfectly* still while the plaster is being poured upon it, or the work will not be successful. Before the fingers can be extricated from the mould, it will generally be necessary to cut away some overlapping parts of the plaster, and this should, for obvious reasons, be done with a blunt knife or spatula.

Fig. 1

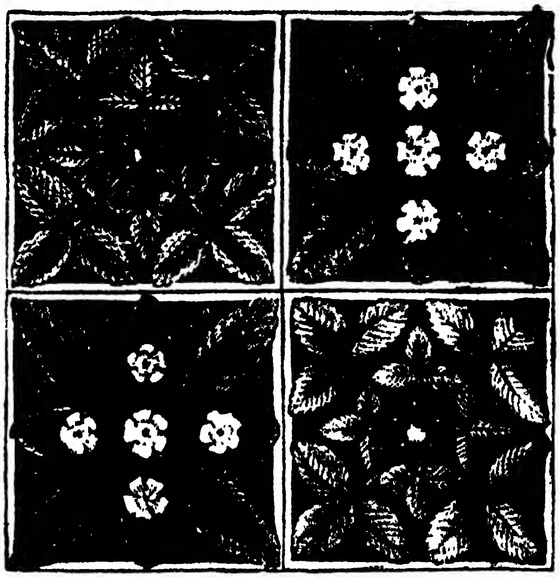


Fig. 5

Fig. 3

Fig. 4

Moulding a mask or face is a matter of far greater difficulty. The person whose face is to be cast should either lie on his back or be so seated that the head can be thrown well backwards on a pillow or cushion. Beneath the chin and round the hair towels should be placed tightly, to prevent the plaster running down. The hair, in all those parts which approach the face, must be pushed back and well plastered down with soap, as must be also the eyebrows, moustaches, whiskers, and beard, for any hairs that may get embedded in the plaster mould

will probably be pulled off when the latter is removed. A female face, that of a boy, or that of a man who is accustomed to shave clean, is comparatively easy to cast, for the hair and eyebrows are much more readily disposed of than the beard and moustache. A beginner is not recommended, therefore, to make his first attempts on a bearded person. A little oil or soap must be rubbed over the skin, and two quills or straws must be inserted in the nostrils to permit breathing to go on while the face is covered with plaster; the mouth and eyes must of course be kept closely shut during that time; and during the time that the plaster is being poured on, and while it sets, not a muscle of the face must be moved. All the operations of mixing the plaster, making the moulds, &c., are precisely the same as in any other kind of casting, except that, for the comfort of the person operated upon, it is well that the mould should be mixed with slightly warm water. Under any circumstances, for that individual, the operation will necessarily be far from a pleasant one. The sensations when liquid plaster is being poured upon so delicate a part as the face are by no means agreeable; waiting for the mould to set while the features are completely encased in it is tedious; and taking the mould off is often attended by some pain, owing to small hairs becoming fixed in the plaster, and being pulled out when it is removed. Anything, therefore, which will tend to render the process less disagreeable must be studied. A cast taken from the face has the advantage of being a more faithful copy of the features than can be obtained in any other way, and one so taken is therefore often a very valuable memento. Sometimes those who have some little skill in modelling, but not sufficient to copy a face, take a cast from nature in this manner, and model to it the other parts of the head and bust. Another way of mounting a mask, and in our opinion a more pleasing one, is that of fixing it on a slab of wood covered with dark velvet, and surrounded by a deep frame. In a cast from the natural face, the eyes are of course always shut, but they may be altered afterwards, and made to appear open by carving in the plaster.

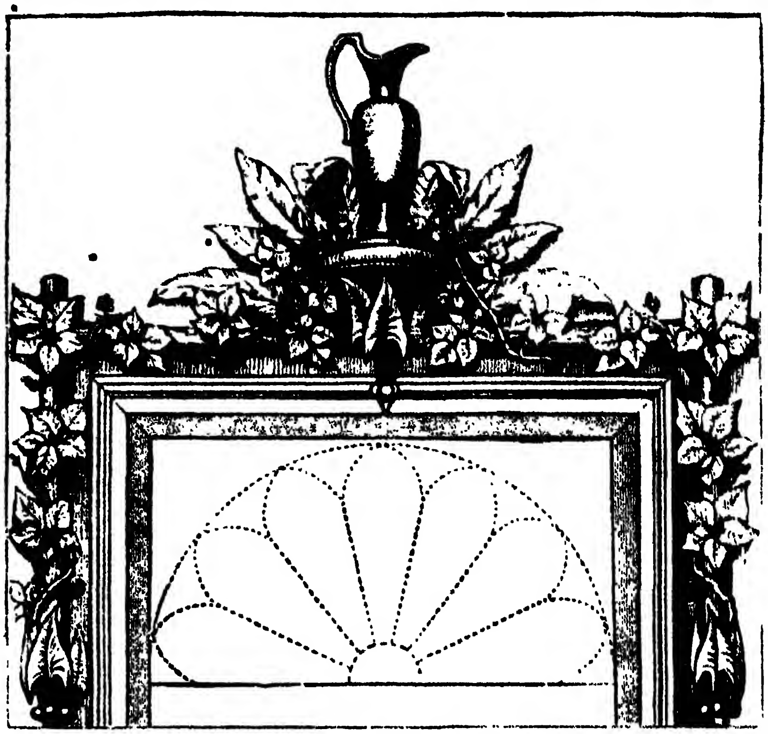


Fig. 7.

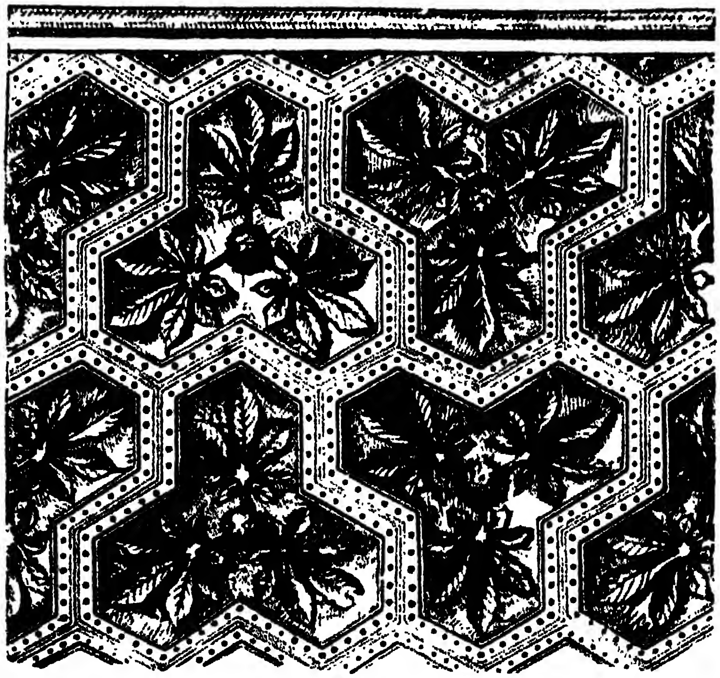


Fig. 8.

As we have before remarked, it is upon casts from foliage, chiefly, that we must rely for the means of producing house decoration by this process. We pointed out in our articles on modelling how such things as vases or brackets might be embellished by that art; we shall now show how casting from Nature may be applied to them.

A very beautiful vase may be made by having the core or body first turned from a block of plaster (see our articles on Modelling), or if the vase be required hollow, for use, by casting a plain vase from such a solid core; then, by the process given already, casting the leaves, berries, and stems separately, paring away from beneath, with a sharp knife, all superfluous material, so as to make them fit accurately into their places, and fixing them to the vase with a little liquid plaster. A bracket may be made in the same manner by fixing leaves and other parts singly on a solid plaster core; or more expeditiously by making a core of clay, arranging and packing the whole of the leaves, &c., upon it, and moulding the entire bracket at a single operation. A pedestal to support a vase, bust, &c., may be formed

by having the round shaft, with mouldings for base and capital, first turned, and then surrounding the top with wreaths and festoons, and attaching different parts of them singly.

To those who live in their own houses, and take delight in spending their leisure time in rendering them as beautiful as possible, casting from Nature offers an inexhaustible treasury of resources. As in Fig. 2, entablatures above doors and windows may be filled with clusters of foliage; as in Figs. 3 and 4, wreaths may be made to run as cornices beneath the ceilings of rooms, or groups of beautiful natural forms may be made to serve as centrepieces above chandeliers; all of which may readily be fixed in their places with liquid plaster, and which will form a pleasing contrast to the stale and lifeless conventionalities with which our ordinary dwelling-houses are encumbered.

By this means, also, an especially beautiful system of wall decoration, which, though old, will probably be novel to most of our readers, may be practised; and of which, in Figs. 5 and 6, we give examples. The style is, perhaps, more particularly suited to halls and ante-rooms, and is carried out as follows:—Round the walls at a height of about five feet runs a surbase, and the space below this may be painted, wainscoted, or cased with glazed tiles, such as are made for the purpose; but, it must be remembered that the latter are very cold in appearance, and therefore unfit for any living-room which is to be inhabited in winter. It is above the surbase that our peculiar form of decoration is to be employed, and it is to be kept at this height that the plaster castings may be as little exposed to injury as possible. The decoration itself consists of plaster tiles (on which are cast leaves, &c., as shown in our illustrations), which, fitting into each other, and repeating the patterns, produce a diaper. All the tiles may be cast of a single design, or the design may be varied, and two or more designs made to repeat over the diaper.

Wall decoration of this kind may be further enriched with gold and colour, and looks best when so treated. For instance, the ground might be painted maroon or dark red, and the leaves of a pale green, lighted on the edges, and in the veins, with gold; although, of course, the colours to be selected, as well as the leaves to be cast and their arrangement, are matters for individual taste, and will be best left to the fancy and judgment of the decorator.

As in such tiles a certain amount of under-cutting will generally be necessary, and as a large number of each pattern will be required, it will be better in making them, after the first tile of each design has been produced, to use a gelatine rather than a plaster mould. This is made by boiling glue with rather more than its own bulk of water, and pouring it over the plaster model whilst warm. When it has become cold, it will form a tough jelly-like mass, and may be pulled, without breaking, from the model; its elasticity, which will be very great, will enable those projecting parts which fit into the hollows caused by under-cutting, to slip over the raised edges of the plaster uninjured, and afterwards to assume their original shapes; and, by pouring new plaster into moulds thus formed, any number of tiles, exactly resembling the original one, may be produced.

The lower portion of the walls beneath the surbase will best be left in professional hands; but there is no reason why any ingenious person should not design, cast, fasten up with plaster, and colour the decorative tile-work.

Plaster work, whether modelled, carved, or cast, and used to a great extent, is no new feature in house decoration. In our own Elizabethan houses, which, perhaps, approach as nearly as any to the perfection of domestic architecture, it was lavishly employed. But in its chief abundance and greatest beauty, it is to be found in the Moorish decorations of the Alhambra. In the conventional patterns which encase the walls of that palace exist the prototypes of the ornamental wall tiles which we have advocated; and in the golden and brilliant hues with which they are enriched, we find authority for that employment of colour which we have recommended to our readers.

ODDS AND ENDS.

To Wash Brushes for the Hair.—Hairbrushes, however dirty, may be washed and kept good for years, without loss of stiffness, by putting a small handful of soda into a pint jug of boiling water. When the soda is melted, put in the brush and stir it about till clean. Rinse it in cold water and dry in the sun or by the fire. The quicker it dries the harder the bristles will be.

The Best Way to Wash Hair.—Rub the white of an egg into the roots, making partings for the purpose. Some use yolks and white beaten together. Rub the head all over whilst the egg is about it. Wash well with soap and tepid water. When clean pour some water as warm as can be borne over the head, and immediately afterwards some water quite cold. A pint basin is a good medium for applying this douche. Fill it and empty on the back of the head, holding the face over a large basin. Wring the water out of the hair. Rub the scalp, till it glows, round and round with a rough towel. Roll up the hair next, and tie a towel round the wet head; after awhile take it off. The hair then is nearly dry, and the head warm. Brush the hair with a clean brush, and spread it out. Do not dress it till quite dry.

To Pot Butter.—If butter be well made, that is, well squeezed or washed of its butter-milk, it may be potted after mixing with it a small quantity of salt, or, if it be preferred, a small quantity of lump sugar. The sugar tends to keep butter from turning rancid quite as well as salt; and the one, after a certain quantity, is neither wholesome nor agreeable, while the other, up to a certain quantity, is both. Layer upon layer may be added, but care must be taken not to touch the previous layer with the hand. Indeed, butter which is required to keep, should be worked throughout with wooden "pads," or "patters" (whence a "pat" of butter).

To make Liquor Bonbons.—These articles of confectionery are prepared by boiling white sugar with water into a thick syrup, and then adding a little spirit and any flavouring and colouring ingredients that may be required. To make these, a tray is filled with finely-powdered starch. On the surface of this, impressions are made of the shape and size of the bonbons we wish to make. These hollow spaces are then filled with the syrup. More powdered starch is then sprinkled over the tray so as to cover the syrup. The tray is then carefully placed in a warm place for the sugar to crystallise. The sugar in the syrup contained in the mould soon begins to form an outside crust, which gradually increases in thickness, while the weak spirit collecting together in the interior, forms the liquid portion of the bonbon.

To distinguish Cotton from Linen.—A small piece should be cut off from the fabric and boiled in a little of the concentrated solution of caustic potash, in a silver spoon or small evaporating basin. It should then be taken out and placed between pieces of white blotting-paper until perfectly dry. If the tissue be now unravelled, it will be found that all the linen threads have become of a dark yellow, while all the cotton on the contrary remain either unchanged or are slightly tinged with yellow. Another way is to unravel the suspected fabric, and examine the threads under a microscope or powerful magnifying glass. It will then be discovered that the fibres of flax present a round and straight appearance, while those of cotton are flat and shrivelled.

Keeping Flies out of Houses.—Some thirty years ago an entomologist called attention to the remarkable means of excluding flies from a room with unclosed windows, by covering the openings of such windows with a net made of white or light-coloured thread, with meshes an inch or more in diameter. Now, there was no physical obstacle whatever to the entrance of the flies, every separate mesh being not merely large enough to admit one fly, but several, even with expanded wings, to pass through at the same moment; consequently, both as to the free admission of air and of the flies, there was practically no greater impediment than if the windows were entirely open, the flies being excluded simply from some dread of venturing across this thread-work. The only condition is, that the light enter the room on one side only; for, if there be a through light from an opposite window, the flies will *pass through the net.*

THE HOUSE.—XI.

HINTS ON HIRING.

FOR the want of a little knowledge of where and how to look for defects, many are led to take houses which are often unpleasant, or sometimes even dangerous to live in. The first thing to be looked into is the situation. This is not only with regard to the parish, street, or square, but also with respect to the soil upon which the building is erected. It often happens in London and other places, where the ground is valuable, that houses are built on totally unsuitable and markedly unhealthy sites, the only thing considered by the builders being to find space for the construction of a given number of rooms. Hence we find houses built in low and damp places which, perhaps, but a few years since were mere swamps, and under water during a great part of the winter. This, therefore, is an important matter, and whenever practicable, a house should be selected which is known to stand upon a naturally elevated site. The soil upon which a house stands also requires some attention. If it be clayey the house will frequently be damp, even if well drained artificially, because clay is almost impervious to moisture, and will not absorb either the rainfall or any water which may be received upon it. A situation in which there is a small portion of loam, upon a subsoil of good gravel or sand, is the best and the most healthy, for the gravel will allow of the free passage of water, thus providing a natural system of drainage, w[illegible] far more effective than the most elaborate artifi[illegible]s. This is a most important consideration, as it [illegible]en repeatedly observed that some forms of disease are engendered or fostered by particular soils. Too much care cannot therefore be exercised in this matter on the part of the intending occupier. Of the importance of an open situation and fresh air we need hardly speak. This is a matter of which all acknowledge the importance, and we need but observe that it would be better to put up with a house of doubtful appearance, and even of small accommodation in an open situation, than to hire one of the most beautiful and elaborately fitted structures possible, if not plentifully supplied with fresh air and sunlight.

The next thing to be considered is the plan upon which the house is built. This has to be considered with reference to the number included in the household, and also if it is to be occupied by one or two families. It often happens that there is a difficulty in obtaining a house in an open, respectable, and otherwise eligible locality of a suitable size for one family, and at a reasonable rent. Hence arises the necessity of taking lodgers, and when this has to be done care should be taken to ensure sufficient accommodation in the way of entrances and offices, so as to allow of the two families being kept as independent of each other as possible.

The rooms should be well lighted, lofty, and dry especially the sleeping apartments. As a rule, underground kitchens or breakfast rooms should be avoided, and the whole of the house should be above ground. If possible, there should be a bath-room, with a good supply of water laid on into it, or in default of this a spare room should be kept for this most necessary purpose, especially if the family be a large one. Of course the prudent housewife will see that the house is properly fitted with at least one cooking range, which should have both oven and boiler, and also that a proper copper for washing purposes is provided in the wash-house. If two families are to occupy one house two coal-cellars will be required, and the water supply should be ascertained to be of sufficient quantity, and of good quality.

The drainage of the house is also a very important matter, and it should be carefully noted whether there is any unpleasant smell on entering the building after it has been long closed. The sinks, and all water-courses for carrying off the sewage should be well and carefully trapped, so as to prevent the escape of noxious gases from the sewer into the house. It often happens that servants carelessly remove the bell-shaped trap from over the escape pipe of the kitchen sink in order to allow of the more rapid escape of the water therefrom, thereby allowing the uninterrupted escape of foul air into the house. Of course, if a bad smell arises from this, the remedy is simple and obvious, but should this not be the cause, the landlord should be at once made acquainted with the fact, and the drains should be repaired without delay. So important a matter as the drainage of a house, involving as it does the health of the family, should therefore receive the strictest investigation. (See page 250, vol. I.) Another highly important consideration, and one which often involves the question of the health or sickness of a family, is that of dampness in the house. This may arise from two causes. Either the foundations of the building may be defective, and allow of the absorption of water from the earth, or the house may have been but recently erected, and the moisture of the brickwork and plastering may be but partially evaporated. In either case the house will be unsafe until this dampness is removed. If it should arise from the former cause, that of defective construction, the house will always be damp, and should be at once rejected as unsafe and unfit for occupation; if from the latter, good fires and thorough ventilation will speedily remedy the evil. If the walls are absorbing moisture from the earth it will be observed that the lower part of the walls are darker in colour than the upper portions, through the colour in the paper-hangings being wet; and the application of the finger will remove both colour and paper. If the quantity of moisture be very great it will often be seen in the flooring, the wood absorbing it from the ends, and appearing darker for some inches beyond the skirting. Should the dampness simply arise from recent construction the dark patches will be seen over both walls and ceiling, which should be carefully watched, to see that they become diminished both in size and number. It will but rarely happen that a house, if at all decently built, will show dampness far up the walls or upon the ceiling, except in the case we have mentioned—that of recent construction. Should such a thing be met with, however, it will at once indicate that it is unfit for occupation.

The advantage of having a large garden or open space at the back of the house is so well known that we need only mention it in passing as one of the things which should be remembered when about to hire a house; it is also generally admitted that a forecourt is an improvement upon the common fashion of setting a house quite out into the street line, without any fence or other protection to the doors and windows.

FOLDING SERVIETTES.

II.

10. *The Shell* (Fig. 1).—This is another very pretty and marked device. Lay the napkin flat on a table, and fold two sides to meet in the centre longways, like Fig. 5; fold it across the centre, and bring the side A A to meet the side B B. The hems are kept inside in this fold. The long narrow piece thus formed must be folded in six equal pieces, and pressed close. It now resembles Fig. 13. Partly open it, and turn down the tops of the folds all along where the fold is double, in the manner shown by Fig. 4. Some can turn these down better if the lower end is kept close like a fan. When these corners are turned down, draw the end together, and pinch it firmly as a fan, and then set it upright on the plate, the two end folds level with the plate, like Fig. 1. If properly done, it stands well. It is a very pretty addition to put alternately in each scallop of the shell a small flower and a leaf. Scarlet geraniums look exceedingly well.

11. *The Victoria Regia.*—Fold a serviette in half, and again in half, lengthways, keeping the hems to the edge; fold it a third time, also lengthways; then set it in twelve folds, like Fig. 13, as the shell was made, only the serviette is now only half the width, and there are twice as many folds. The corners are turned down (Fig. 4) as they were for the shell, beginning with the first hem; undo the plaits as little as possible; turn the first hem completely back, to make the first row of petals; turn back the second hem the same way, not quite so far; then turn down the first fold, which comes next, to form petals to meet those already made. The last fold is not turned down (see Fig. 9). Bring the two ends of the serviette together to form a round; the inner edges are thus forced up as a heart. A rosette is the figure formed, and the rosette represents the Victoria Regia (Fig. 2). The serviette must be reduced to keep the round unbroken. The bread is not placed in or under it, but a few small flowers or even the head of a small rose, arranged in the centre. This shape is difficult to make, and requires very stiff damask. The petals need to be nicely set with the fingers, to resemble it. There are three rows of petals turned down, and one upright edge left, although only two rows are shown in Fig. 9.

12. *An Easy Way of Folding a variety of the Shapes first described.*—Fold the serviettes in half and form a point, and roll both ends up, over, as in Fig. 1, page 196; bring the end B in each of these rolls to A, and represent Fig. 14;

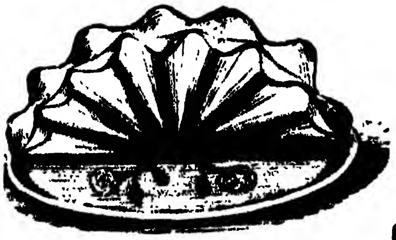
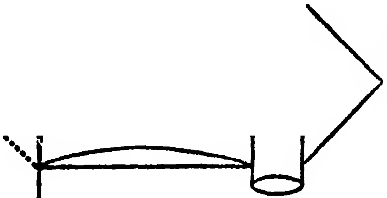


Fig. 1.



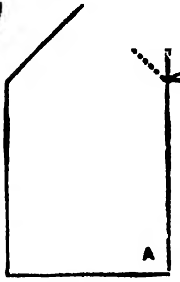


Fig. 3.

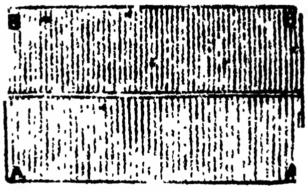


Fig. 5.


Fig. 2.


Fig. 4.

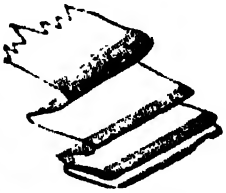


Fig. 6.

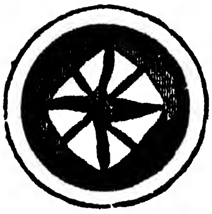


Fig. 7.

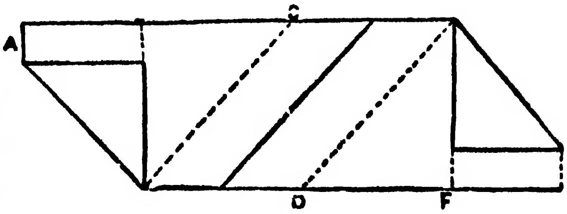


Fig. 8.

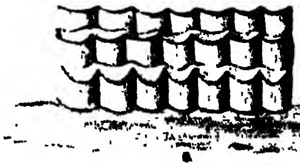


Fig. 9.


Fig. 13.


Fig. 14.

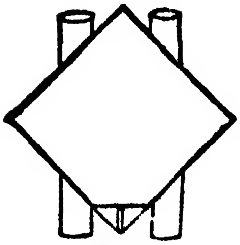


Fig. 10.

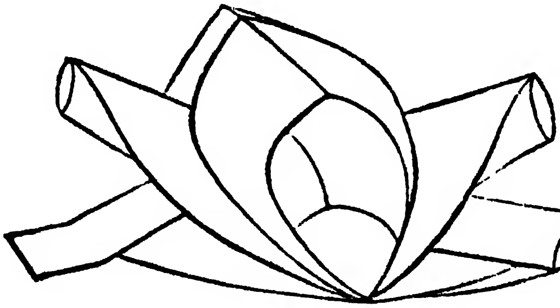


Fig. 11.

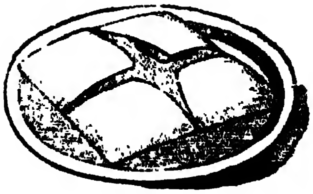


Fig. 12.

lay this on the table with the roll under, and raise the point upright at A (Fig. 26), and take the part B and turn it up in the way shown by Fig. 25; then curve over the points. The whole is represented by Fig. 24. With a slight variation Fig. 10 may be formed; turn down half of the point and slip in the bread, as in Fig. 19.

13. *A Chestnut Pocket.*—Fold a serviette in half one way, and then again in half the other way; make the crease; open it. There will be a figure of a cross upon it by this means, like Fig. 6, page 196. Fold the four corners exactly to the centre; crease them flat; turn it over on

Fig. 15.

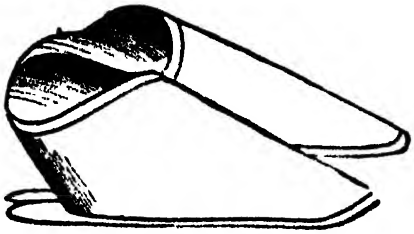


Fig. 16.

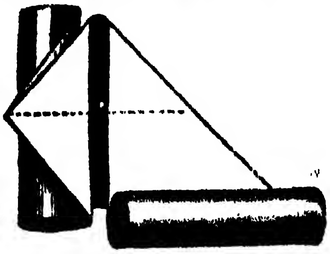


Fig. 17.

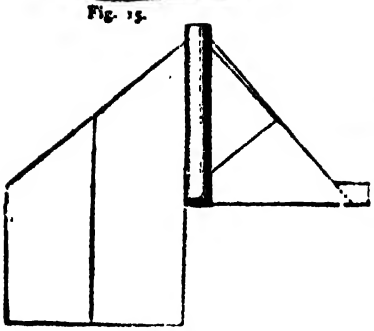


Fig. 18.

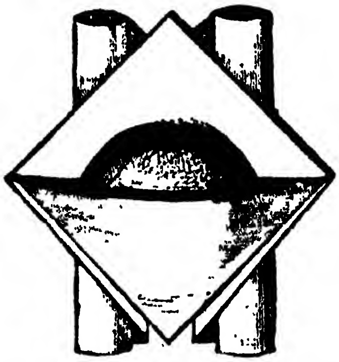


Fig. 19.

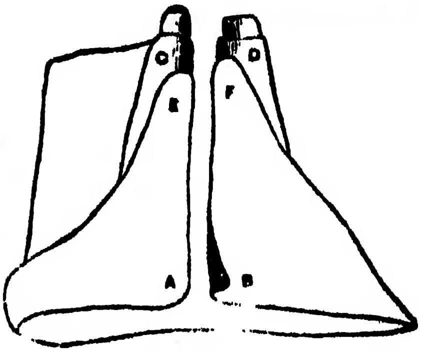


Fig. 20.

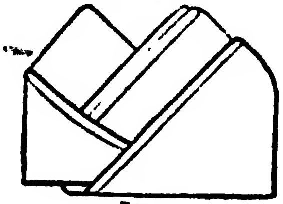


Fig. 21.

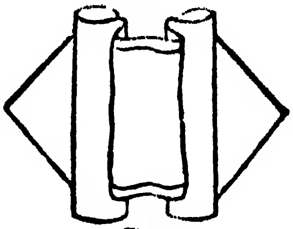


Fig. 27.

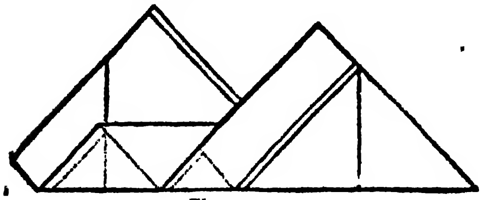


Fig. 22.

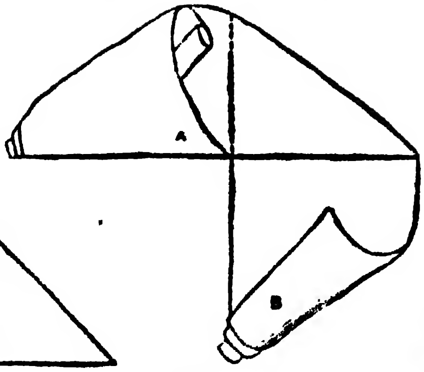


Fig. 23.

Fig. 24.

Fig. 25.

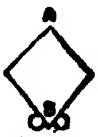


Fig. 26.

the other side, and again fold the four corners to the centre, like Fig. 7, page 196. Turn this over again, and place it on the plate. Slip some of the hot chestnuts inside every corner. (See Fig. 12.)

14. *The Pocket.*—To fold the serviette this way, at the first do it exactly like the chestnut pocket. When it is turned over, after the second folding, with the hemmed edges showing, once more turn down the four corners to the centre; turn it over again, and slip the bread under the four top pieces, pressing them down close over it. (See Fig. 7.)

15. *The Tulip* is a very effective figure in damask, and yet simple enough in its folding. It requires the serviette to be very stiff. Fold the four corners to the centre like Fig. 6, page 196; again fold the four corners to the centre like Fig. 6; a second time, a third time, a fourth, and a fifth turn the corners into the centre. The turning down should be very exact. Then take the four corners uppermost, and dexterously turn them back, as in Fig. 2; continue turning the corners back this way, leaving only the centre ones unturned; then nip up the under part of the serviette in the fingers, and shape it into a champagne glass. The turned-back corners form the tulip petals, and hang down in quite long points, like rabbits' ears.

16. *The Pyramid* is not quite so easy. Fold the napkin in half lengthways, one side within an inch of the other, as in Fig. 17, page 196; then make seven plaits in it in the way shown in Fig. 13, which is smaller in proportion than the serviette fold, simply for the economy of space; take a paper-knife and, as it were, crimp up the serviette the narrow way, folding it in and out the width of the knife; stand it upright and join it round into a pyramid like Fig. 19.

17. To fold Fig. 27. Fold the serviette four times lengthways. Fold down one end as observed at A in Fig. 3—not to the centre by a couple of inches. Fold again at the dotted line B. Roll the end A as shown

at C. Fig. 17 illustrates the process. Fig. 27 shows the complete design.

18. *The Tiara.*—Double the serviette four times lengthways. Fold down each corner, as shown in Fig. 8. Then fold by the lines across C D, and represent Fig. 22. Push the folds close together. Fold in half at the centre line, and tuck in the corners. Open the design by placing the hand inside. It must resemble Fig. 21 when complete.

19. *A Pair of Slippers.*—Fold a serviette four times lengthways, and then like Fig. 1, page 196. Fold down the point to A A; then roll the two ends on the slant, as shown in Fig. 23. Turn them over, holding the tops of both in the fingers; draw the part of the serviette which crosses the rolls tightly down, thrusting the tops of the rolls through, and make the slippers, Fig. 16.

20. *The Helmet.*—Fold a serviette in half lengthways. Roll up the four corners slanting, like A and B in Fig. 23. Fold the four together, like Fig. 20. Bring A and B together, letting the four corners project. Push back the centre, and hollow it to resemble Fig. 11.

21. *The Fan.*—This is a very pretty way of folding (see Fig. 15). Fold first as for the shell (Fig. 1), but do not pick out the edges. Place it in a champagne-glass in the manner shown in the diagram.

SOAP.—II.

TOILETTE SOAPS OF VARIOUS KINDS, ETC.

In making scented soap, the fat is boiled with soda-ley in a small copper; the proportions used being one part of alkaline ley and two parts of the fat; the fat employed for the preparation of these soaps being usually mutton fat and lard. It takes usually some hours simmering at a very gentle heat, during which time it must be continually stirred, before the contents are converted into soap.

Saponaceous cream for the toilette, or cream of almonds, as it is sometimes called, is made in the same way. The materials employed are potash-ley, with lard and cocoa-nut oil.

A transparent soap may be prepared by dissolving soda soap in alcohol, and evaporating off the spirit by a very gentle heat. A similar soap, but softer, may be made by employing potash soap in place of that prepared from soda.

Fancy soap is often scented with nitro-benzule, or the artificial oil of bitter almonds. This is chiefly employed owing to its cheapness. Delicately scented soap may also be made by employing lard in which flowers have been previously boiled, during which process the essential oils contained in the flowers, being volatilised, leave them, to combine with the lard.

Carbolic soap is a preparation which is very valuable, inasmuch as it possesses remarkable cleansing power, without the drawback of injury to the fabric; and is, at the same time, a sure disinfectant, and peculiarly adapted for washing linen which has been used in cases of fever. Another quality which residents in old houses, and housekeepers generally well appreciate is, that its use is fatal to certain insect pests which, in spite of all ordinary precautions, will sometimes make their presence unpleasantly conspicuous.

Silica is also occasionally used in the manufacture of cheap soap. It is obtained by acting on flints by caustic potash. Soap thus prepared is extremely wasteful; for although it can be sold very much cheaper than ordinary soap, the loss attending its employment makes it dearer in the end.

In countries where the olive is cultivated, the soap usually used is prepared from that substance; but in this country olive oil is too expensive to be used for this purpose.

MAKESHIFT FURNITURE.

Some ideas worth noting may be taken from the manner in which makeshift furniture is formed in distant settlements, both as hints for emigrants and to the poor in this country. Ingenious boys, too, might like to make use of some of the suggestions to form seats in their own gardens, or shelves in their play rooms. A barrel is made use of for many purposes. First, a large one can be converted into a chair. Saw it in half, half way down, and then remove the piece at right angles. Saw the lid in half and make a seat of it. The upright piece is the back. Cover it with chintz, and put a dimity flounce round the lower part, and a soft cushion on the seat. A smaller barrel, with the head removed and a large square board fixed on the top, makes a toilette-table or a washhand-stand. For the latter, cut out a round hole, cover it with oilcloth, and put a chintz frill round it. Two barrels support a board for a sideboard or a side table, and for a centre table put a large square of wood, or planks joined, on four or six small barrels, fastening the planks together first by long narrow slips of wood nailed along the back. Cover the tables with oilcloth and a dimity flounce, or with chintz entirely. For a sofa, cut a large barrel the same as for a chair. Cut another large barrel in half. Turn the narrow ends upwards and rest a long board on them secured by nails, add cushions and a chintz cover. Every other stave may be taken from these barrels before they are cut to make shelves.

Packing-cases are of great use, and the planks from them form better shelves because they are even. From packing-cases or egg-boxes, very good flower-boxes may be made for balconies, back windows, or gardens. They are joined with small nails, painted stone-colour, and afterwards green. If anyone possesses enough skill to paint them to resemble encaustic tiles they can be rendered highly ornamental. With the assistance of a few egg-boxes, a saw, hammer, and nails, a rural bower or summer-house can be constructed either solid or of trellis or lattice work. It must afterwards be painted, and ivy, or any other rapidly-spreading creeper, be grown over it. No plant is prettier for the purpose than clematis.

COOKERY.—LXI.

VARIOUS MODES OF COOKING EGGS.

Before we give some of the various receipts for the above purpose, it may be as well to say something on the property of the egg as an article of animal food. The egg of the domestic hen is that which is most commonly known, and most extensively used as food. The egg consists of three principal parts—the shell, the white, and the yolk. The shell is composed of carbonate of lime or hard chalk, and is intended chiefly as a protection to the inner part. It is penetrated, however, by numerous minute holes or pores, through which the air is capable of passing, and by means of which it is conveyed to the young bird during the process of hatching. Through these pores, also, the air enters, by the agency of which eggs, when kept, soon become rotten. If these pores are filled up by rubbing the newly-laid egg over with fat, or in any similar way, it will keep fresh for an indefinite period.

The egg, as a whole, is richer in fat than fat beef. It is equalled, in this respect, among common kinds of food, only by pork, and by eels. The white of the egg is, however, entirely free from fat; the white is a very constipating variety of animal food, so that it requires much fat to be eaten along with it, in order that this quality may be counteracted. It is, no doubt, because experience has long ago proved this, that eggs and bacon have been a popular dish from time immemorial.

Thus, we see that eggs contain in a small bulk a great deal of nutritious matter. When soft-boiled, eggs are very

easily digested; but when hard-boiled, they form a very indigestible mass, requiring very strong powers of the stomach. If a person in health is going on a journey where he will be long in getting food, one or two hard-boiled eggs, taken before setting out, will keep off the sensation of hunger for a considerable time. If the stomach be out of order, eggs are apt to disagree, and, either alone or in puddings, they should be abstained from. An egg, for a healthy child, is a good article of diet, but in many of the disorders of the stomach and bowels to which children are so liable, eggs and puddings made with eggs are inadmissible; and for children, eggs ought to be soft-boiled, and a due quantity of bread eaten with them.

Choice of Eggs.—The finest-flavoured hens' eggs are those with bright orange yolks, such as are laid by the game breed and by speckled varieties. The large eggs of the Polish and Spanish breeds have often pale yolks, and little flavour. In making Christmas plum puddings, ducks' eggs are more serviceable and more economical than those of fowls, and being larger in size, heavier, and far richer, they may be regarded as worthy the attention of the housewife.

To Poach Eggs. Put a pint of water into a stewpan, with four teaspoonfuls of vinegar, and half a teaspoonful of salt; place it over the fire, and while boiling, break the eggs into it near the surface of the water, and let it boil gently about three minutes. Lay upon a dish a thin piece of toasted bread, take the eggs out carefully with a small slice, and lay the slice with the eggs upon a cloth, for a second, to drain the water from them; then set them carefully upon the toast, and serve very hot. Much depends upon the careful breaking and boiling of the eggs. If the yolk separates from the white, it may be presumed that the egg is not fresh, but it may be eatable, for the same thing may happen through awkwardness in poaching. Again, the toast upon which the eggs are served may be buttered either with plain butter; or two small pats of butter may be melted, without boiling, and poured over. To prevent the unsightly admixture of the yolk with the white, the following simple method is recommended: Use a large stewpan, nearly filled with boiling water; pour two tablespoonfuls of hot water into a saucer, and break the egg carefully in the centre of the saucer, then gently lift it, and place it on the surface of the water in the stewpan; the instant the yolk sets, take out the saucer, and remove the egg with a slice to the dish required.

Eggs a la Tripe.—A pretty and economical side or supper dish may be made by boiling two Portugal onions in two waters, then peeling and cutting them into slices. Simmer these for half an hour in new milk. Boil six eggs until they are quite hard, throw them into cold water, take off the shells, cut them into slices—from top to bottom is the most approved mode. Rub a bit of butter, the size of a walnut, in fine flour, put this in the milk, and as soon as it is dissolved, add the slices of egg. Garnish with sippets of toast, and serve with newly-made mustard.

Poached Eggs in Gravy.—Boil a pint of water, a wine-glassful of vinegar, and a teaspoonful of salt, in a stewpan. Skim, and let it cool. Carefully break six new-laid eggs into separate teacups, and pour each, very gently, upon the surface of the water; put the stewpan again upon the fire, and, as the eggs set, take them out with a slice, and immerse them in cold water. When required for table, trim the edges, drain them upon a cloth, and warm them in a rich brown gravy, or strong veal broth.

Eggs in the Shell.—Put them into boiling water; take them off the fire; cover them five minutes to allow them to set; then take them out of the water, and serve in a folded napkin.

Eggs au Miroir.—Spread butter upon a dish that can be set on the fire; break the egg over it, adding salt, pepper, and two spoonfuls of milk; place it on a slow fire, with a red-hot shovel over it, and serve when the eggs are set. Or, cut some asparagus tops into pieces like peas, boil them a quarter of an hour; then take them out, and put them into a stewpan, with a bunch of parsley, chives, and a piece of butter; set them over a slow fire, put in a pinch of flour, add a little water, and let them stew, seasoning with salt and sugar. When done, put them into the dish they are to be served in, and break over them some eggs, seasoned with salt, pepper, and nutmeg. Set them for a short time over the fire, press a red-hot shovel over, and serve the yolks soft.

Fried Eggs.—Break into a pan of boiling fat the eggs, one by one, and fry them, taking care that the yolks do not harden. Serve them with white sauce or gravy, or with a forcemeat of sorrel.

Eggs with Fine Herbs.—Put into a stewpan some parsley, chives, and a shalot finely chopped; add salt and pepper, and a little white wine, and a piece of butter rolled in flour. Boil the whole seven or eight minutes, and pour it over some soft-boiled eggs, with the shells taken off; sprinkle them with fine bread raspings, and serve very hot.

Jumbled Eggs.—Break the eggs into a stewpan, add a little butter, season them, set them over a stove, and continue to stir them; when done, serve immediately. May be served with or without a ragoût of vegetables—celery, lettuce, endive, or asparagus tops.

Eggs with Green Peas.—Boil some green peas in *bouillon;* when they are soft, add fried bread; break in some eggs, add salt and pepper, and gently boil up the whole.

Forced Eggs.—Boil eight eggs hard; take off the shells, and cut them in half; take out the yolks, which put into a large dish with a quarter of a pound of fresh butter, finely chopped herbs, a little salt, pepper, and nutmeg, and some bread-crumbs soaked in milk; and beat up the whole together. With this forcemeat fill the hard whites of the eggs, put them into a buttered pie-dish, and upon them a layer of forcemeat. Set them in a Dutch oven before a clear brisk fire, for a quarter of an hour, and serve.

Eggs en Caisse.—Make a small case of strong paper pasted together for each egg, and put into each a piece of butter, the size of a walnut, and some fine herbs, warm them on the gridiron; break into each case an egg, which season and cover with bread-crumbs, or some grated Parmesan cheese, or a teaspoonful of chopped onion and parsley; let them boil gently, and pass over them a red-hot shovel, or salamander; or the eggs may be baked.

Eggs with Milk.—Beat six eggs with two ounces of loaf sugar, and a pint of milk; put the whole into a pie-dish, which set for three-quarters of an hour in a *bain-marie.* When done, sprinkle them with powdered sugar, pass the red-hot shovel over the tops, and serve either hot or cold.

Buttered Eggs.—Break eight eggs, and add two ounces of butter; season with pepper and salt; toast a slice of bread, and butter it; spread it with mustard; fry the eggs, constantly stirring till they become thick; put them over the toast, and cut into small squares.

Egg Fricassee.—Boil eight eggs hard; take the yolks out, and put them in the middle of a dish; place the whites round, cut in shapes; pour over white sauce quite hot, or mustard and melted butter.

Egg Salad.—Boil eight eggs hard; chop the yolks and whites separately; put a little salad into the dish; cover it with the eggs in layers; when done, make a hole in the middle, and pour in the salad mixture.

Sea-gulls' Eggs, when boiled hard, seasoned with pepper, salt, vinegar, and mustard, make a delicious breakfast dish. Many persons have an antipathy to these eggs, but it must have arisen from eating them in a soft state, when they have always a fishy taste.

Plovers' Eggs should be boiled ten minutes, and served, if hot, on a napkin; if cold, in nicely picked moss. Plovers' eggs may likewise be boiled, and the shells and whites being removed they may be served in a mould of savoury jelly.

Eggs and Spinach, or Sorrel.—Boil, press dry, and mince spinach, and serve upon it the eggs poached. Or, stew spinach or sorrel, and spread the poached eggs round the dish, with pieces of fried bread between them.

Pickled Eggs.—In the counties of Hants and Dorset, pickled eggs are prepared as follows:—At the season of the year when the stock of eggs is plentiful, the dames boil four or six dozen in a capacious saucepan, until they become quite hard. They then, after removing the shells, lay the eggs carefully in large-mouthed jars, and pour over them scalding vinegar, well seasoned with pepper, allspice, whole ginger, and a few cloves of garlic. When cold, they are bunged down closely, and in a month are fit for use. When eggs are plentiful, the above pickle is by no means expensive, and is a relishing accompaniment to cold meat.

Egg Sandwiches.—Boil eggs hard, slice them, put them in a layer, sprinkled with salt, between nicely cut bread and butter.

Minced Ham and Eggs.—Mince very finely lean ham, which put into a stewpan, with melted fat of bacon, and set it over a clear fire; in a few minutes, carefully let fall in an egg, which will soon be fried round, with the minced ham sticking to it.

Eggs in Jaundice.—The yolk of an egg (says Dr. Hunter) is a natural soap, and in all jaundice cases no food is equal to it. When the gall is either too weak, or by accidental means is not permitted to flow in sufficient quantity, our food, which consists of watery and oily parts, cannot unite, so as to become chyle. Such is the nature of the yolk of an egg, that it is capable of uniting water and oil into a uniform substance, thereby making up for a deficiency of natural bile.

HOUSEHOLD AMUSEMENTS.—XXVII.

MODELLING WITH CINDERS AND STARCH PASTE.

Modelling with Cinders.—To model with cinders, select them of a small size, or according to the dimensions of the work, and make the plan as directed for modelling in cork. Have the dust brushed off the cinders, and then arrange them on the foundation of thin wood or pasteboard to resemble the design. The pasteboard or wood must be covered with brownish tissue paper, pasted over it; and brown paper soaked in thin glue until pulpy, will serve to fill up little vacancies among the cinders, so as to resemble thick patches of old mortar or cement-work.

When not quite dry, the ruin, old church, &c., must be sprinkled with powdered brick, sand, powdered slate, and lichen and moss in very small pieces, for some parts they must be in a powder. Large pieces of moss will represent ivy.

To give effect, touch up some portions with oil, water, or varnish colours. Trees may be formed of moss fixed to wire which has been covered with green or brown tissue paper. The moss may be attached to the wire with glue, or bound on with very fine wire. The board to which the model is fixed should be covered with brown tissue paper, and some portions with green, to represent patches of grass. Wash over with glue, and then sprinkle thickly patches of fine earth, sand, and powdered moss and lichen. Small pieces of sandstone and chalk may be laid among the ruins to represent fallen stones.

If a cave be introduced, it may be sprinkled in some parts with small pieces of spar or crushed coloured glass; and at the further end a small piece of looking-glass laid on the ground, and surrounded with very small shells and sand and pebbles, will have the effect of a pool of sea-water. Small pieces of seaweed may also be attached to the exterior and interior of the cave, and if made to represent a hollow in a rock, seaweed must be substituted for moss, in pieces according to the dimensions of the model.

If the cave be made about half a foot high, or less, and about a foot deep, the height being made to vary and also the dimensions, a very pretty effect is produced by hanging or fixing at the end a little lamp, to reflect a faint light on the spar, and the figure of an old hermit seated at a table adds to the interest of the model.

The outside will be larger cinders arranged and filled up as previously directed, and on the top, among the rough rocky formation, should be inserted large well-formed pieces of French dyed moss to represent bushes; trees may be made of wire, and covered with moss; and even tiny dried flowers and grass are introduced into any model with very pleasing effect.

If a small opening is made in the roof of the cave, and filled with yellow glass in among the rock-work, hidden from view, it will produce the effect of a gleam of sunshine through an aperture in the rock, and light up the spar and interior without the aid of the lamp.

Starch Paste Models.—Starch paste for modelling is made by soaking gum tragacanth in water, and when soft mixing it with powdered starch and a little double-refined powdered sugar, until of a consistence that can be rolled like paste for pastry on a board or marble slab.

This material is used by confectioners for making white ornaments; and for modelling modern houses, churches, &c., is better than cork or cinders. When the paste has been rolled out to the thickness desired, the various parts of the building are cut out from paper patterns with a sharp penknife, and when hard, gummed together, and when dry, coloured as required. The windows of houses and churches are made of net and the frames of narrow pieces of paper, and the model finished off with moss, &c., as previously directed. Starch paste is a material with which models are easily made, and they may be either varnished with white varnish to represent marble, or left plain for stone. The paste is, however, liable to shrink, which causes contraction, and renders it objectionable for producing accurate models; but the effect is very pretty.

USEFUL RECEIPTS.

Varnish for Iron.—The following is a method given by M. Weiszkopf of producing upon iron a durable black shining varnish:—Take oil of turpentine, add to it, drop by drop and while stirring, strong sulphuric acid until a syrupy precipitate is quite formed, and no more of it is produced on further addition of a drop of acid. The liquid is now repeatedly washed with water, every time refreshed after a good stirring, until the water does not exhibit any more acid reaction on being tested with blue litmus paper. The precipitate is next brought upon a cloth filter, and, after all the water has run off, the syrupy mass is fit for use. This thickish magma is painted over the iron with a brush; if it happens to be too stiff, it is previously diluted with some oil of turpentine. Immediately after the iron has been so painted, the paint is burnt in by a gentle heat, and, after cooling, the black surface is rubbed over with a piece of woollen stuff dipped in and moistened with linseed oil. According to the author, this varnish is not a simple covering of the surface, but it is chemically combined with the metal, and does not, therefore, wear off or peel off, as other paints and varnishes do, from iron.

Razor Paste.—Take putty powder one ounce, oxalic acid a quarter of an ounce, and honey enough to mix with these so as to make a stiff paste. Apply it to the strop, and wrap the remainder in tin foil.

THE WATER-BOUQUET.

UNDER the above name an extremely pretty variation from ordinary flower-pots has been introduced, which may well take up a position in the drawing-room or boudoir, for the decoration of the dinner-table, or to place in the sick-room. It consists of flowers, leaves, &c., immersed in water beneath a glass basin turned bottom upwards, and owes its peculiar beauty to the sparkling and frost-like appearance which vegetable forms assume under such circumstances, and to the illusive and fairy-like effect caused by the refraction of light, and the magnifying power of the combined glass and water.

Glass shades of any size or shape, which may suit the fancy or requirements of the maker are among the best receptacles in which to make the water-bouquet, the thin quality of the glass in such articles, and the roundness of their forms, being good to show the flowers or leaves within to advantage; but for making one on a large scale a common garden hand-glass may be made to serve, and finger-glasses, when plain, answer the purpose admirably for small ones. In addition, a plate or dish has to be provided sufficiently large to admit of the edge of the glass shade or basin resting smoothly on its flat inner surface.

In the centre of the plate or dish the flowers, leaves, &c., are arranged, and the better plan is to tie them with German wool to a stone. This, or some similarly heavy substance is necessary to prevent the bouquet from floating in the water and rising to the top of the glass, as it would otherwise do; and care must be taken that no loose leaf or other fragment is left, as this by floating would spoil the general effect. Some care and taste will of course be necessary in fixing the materials which compose the bouquet in their places; the stone must be wholly concealed, as must also be the ends of the stems, by leaves, &c., so that everything may appear as though growing naturally beneath the water.

WATER-BOUQUET.

When the general arrangement is completed, a tub or other vessel full of water must be prepared, sufficiently large to admit of both plate and glass being submerged in it. In the bottom of this vessel the plate with the bouquet must be placed, and some little further arrangement of the latter will now in most cases be necessary, to restore any leaves or petals which may have been displaced by the action of the water, and to make such slight alterations as will be suggested by their effect when seen through the new element, and care must be taken that nothing projects so far towards the edges of the plate as to touch those parts on which the edge of the glass will have to rest.

When everything is satisfactorily arranged, take the glass shade, and put it into the water *sideways*, so as to leave no air within it, and then put it in its position upon the plate. The whole may then be lifted from the tub, and the shade will remain full of water, which, as there will be no atmospheric pressure from within, will not flow out, though it will be well to leave a little water in the bottom of the plate round the edge of the glass, to keep it thoroughly air-tight.

Any person who makes a water-bouquet for the first time, will be surprised to find how small a number of flowers or other objects are necessary, apparently, to fill the glass. This is owing to the magnifying power of the convex glass filled with water, which increases their apparent size. In summer, flowers will of course be the materials used in making these decorations, and those will be found best suited which are small in size and compact in shape, such as the carnation or verbena. The common blue single clematis always looks well, and such leaves as those of the variegated geranium are good to hide the stone and the bottoms of the stalks. In winter the leaves and berries of the holly, arbutus, &c., look exceedingly pretty; and by those staying at the sea-side a charming water-bouquet may be made with sea-weeds and shells.

Unfortunately, these things possess the disadvantage of retaining their beauty for a short time only. About four days in the summer and eight in the winter, is as long as they can be kept in perfection, for vegetation is found to decompose more rapidly when wholly exposed to the action of water than it does when partially in the air. They are not, however, in their greatest perfection immediately after they are made. On the second day, owing to the gas which they throw off, the flowers and leaves become covered, especially at their edges, with minute air bubbles, which impart to them a beautifully frosted appearance; consequently, when required for special occasions, they should be made up on the previous day.

As a decoration for the dinner-table, it is difficult to make the water-bouquet sufficiently high and imposing-looking for the centre; but for corner ornaments nothing can be prettier. In the sick-room it has an especial use. Flowers are always pleasant for the sufferer to look upon, but the scent of them is frequently too much for his weak nerves, and the water-bouquet can in that case be employed, as no effluvia whatever can escape from it.

PRINCIPLES OF COLOUR, AND RULES FOR THEIR ARTISTIC APPLICATION IN DRESS, FURNITURE, ETC.—III.

Colour in our Dwellings.—As we may read, to some extent, the character of some individuals in their dress, so we believe we might do so in the aspect of their dwellings. A room of a bright and cheerful appearance surely tends to dispel gloomy and melancholy associations, whilst a dark and dismal cell provokes them; glitter and tawdriness disturb thoughtfulness, whilst quietude in colouring tends to suggest it. We cannot cite, on this subject, a better authority than the late D. R. Hay, who has given to the world a series of the most complete

works that have yet appeared on interior decoration. He says, "The great majority of houses have scarcely any marked feature of decoration about them which indicates taste or knowledge. Fashion seems to rule more than good taste. Sometimes every room you enter is of one colour—sometimes the rage is for warm shades of colour, at others for cold, though the preponderating taste seems to take refuge in dull, characterless, neutral colouring. You will also find crimson walls in south aspects, and leaden-coloured ones in north aspects. A like absence of any recognised principles is seen in the carpets and hangings; with crimson walls we had drab and light-coloured carpets. More by chance than anything else, it is now the fashion to have the carpets darker than the walls. We may often enter a room which, preserving something of each shifting fashion of the few past years, exhibits a violation of every principle of harmonious decoration walls of a hot and positive colour in a room with a south aspect; a blue ceiling fuller of colour than the drab carpet; with curtains and hangings of scarlet, and, perchance, a huge sofa of black horsehair—not a single thing appropriate or consistent, but the whole a medley of unsuitableness."

To proceed properly in decoration, the tone or key is the first point to be fixed, and its degree of warmth or coldness will be regulated by the use, aspect, and light of the apartment. The tone is generally fixed by the choice of the furniture; and this ought to have particular reference to the aspect, because the furniture may be considered, in regard to colouring, in the same light as a key-note in music, or as the principal figures in a picture, and the general tone must therefore depend upon the colours of which it is composed; for instance, if the prevailing colour be blue, grey, green, or lilac, the general tone will be cool; but if it be red, orange, brown, yellow, or a warm tint of green, the tone must be warm; but, as stated before, there can be no pleasing combination of colours without variety.

The style of colouring is the next point to be fixed, and will depend entirely on the use of the apartment. In a drawing-room, vivacity, gaiety, and light cheerfulness should characterise the colouring. This is produced by the introduction of tints of brilliant colours, with a considerable degree of contrast and gilding; but the brightest colours and strongest contrasts should be upon the furniture, the effect of which will derive additional value and brilliancy from the walls being kept in due subordination, although at the same time partaking of the general liveliness.

The characteristic colouring of a dining-room should be warm, rich, and substantial; and when contrasts are introduced they should not be vivid.

For libraries, rich and grave—no lighter colouring than to give the effect of grandeur, and unite the painting with the richness produced by the bookbinder's art.

Bedrooms, light, clean, and cheerful style: gayer and brighter colours upon the carpet.

Breakfast-parlours ought to be painted in a medial style between that of a drawing-room and dining-room.

Staircases and lobbies being made cool in tone and simple in the style of their colouring, will much improve the effect of the apartments which enter from them.

The same principles obviously apply to the choice of colours in stair-carpets and floor-cloths for the lobbies and passages, for which, except under especial circumstances, cool tints, such as grey, are generally preferable. It should be remembered that the appearance of the hall generally creates the first impression on the visitor's mind as to the taste which has regulated the adornment of the house; and that in this, as in other matters, it is not only agreeable, but almost a social duty, to make the first steps in friendly intercourse as pleasant as possible.

HOUSEHOLD AMUSEMENTS.—XXVIII.

FEATHER FLOWERS.

THE materials for making these beautiful ornaments are easily obtained, and the work will be found interesting and less difficult than many of the same kind.

The materials to be procured are the best white swan or goose feathers; and they should be plucked, if possible, fresh from the bird, with great care not to injure them. A little fine wire of different sizes is also required; this may be obtained at shops where materials for artificial flower making are sold, or at some ironmongers'. A few skeins of fine floss silk, from the fancy shop; good cotton wool from the chemist's—a pennyworth will be sufficient; a reel of No. 4 Moravian cotton; a skein of Indian silk; gum; a pair of small, sharp scissors; a few sheets of coloured tissue paper; and water-colours.

To copy a flower in feathers, the best way is to get a good specimen of the flower you wish to imitate; carefully pull off the petals one by one, and cut out the shape of each in tissue paper, being careful to leave the shaft of the feather at least half an inch longer than the petal of the flower. The feathers must be free from down, except a small quantity on the shaft; and when the feather is thus cut to the proper shape, carefully bend it with the thumb and finger to the proper shape for use.

The stem of the flower is made of wire, about six inches long; on the top of the wire lay a piece of cotton, bend the wire over, and wind the wool round until it is the size required for the heart or centre of the flower to be imitated. The wool should be fixed by tightly winding very fine wire or silk round the end—by bending the wire it prevents the wool slipping off at top.

If it is a single flower to be imitated, cover the wool with velvet, yellow or green, and arrange round it the stamens, which are to be bought of all sizes and colours at the flower material shop. When the stamens have been attached, fix the petals round them *one at a time*, winding round them very fine wire or green silk firmly and strongly.

Arrange the petals as nearly to Nature as possible, with the original before you, as nearly like the one dissected for a pattern as can be found; or if the flower is no longer in bloom, get a cambric artificial flower for imitation. When the petals are fixed, cut the stems of the feathers even, and fix on the calyx, which will be also purchased at the flower maker's. The calyx is made of wax, and the stalk runs through it; it is drawn up the stalk to the under part of the flower, and fits closely at the back.

The stem must now be covered with green French stem paper, cut in narrow strips and wound round the wire from the calyx, care being taken that it perfectly covers the end of the calyx.

The paste for forming the calyx, hearts, and buds of feather flowers is made as follows, and may be used, if preferred, to the materials already made for use, at the flower maker's.

Take common white starch and mix it with gum water until of the substance of thick treacle, and colour it according as required with the colours used for dyeing the feathers, and keep it from the air.

Paste for Stamens, Buds, &c.—Mix common ground rice into a stiff paste with the dye required; dry it before the fire, and, when quite hard, reduce it to a fine powder. Into this powder dip the stamens, and flower centres, &c. Make the buds, berries, and hearts of some double flowers with wool wound round wire, mould it to the shape with thumb and finger, and smooth it over with gum water; when dry, cover the buds, berries, or calyx, with the proper coloured paste; one or two coats will be necessary, and they may be shaded with paint, then gummed over and left to dry. The leaves of the flowers

are made of green feathers, cut to the shape of the natural leaves, and serrated at the edge with a fine pair of scissors. The calyx of a moss rose is formed of feathers with the down left on.

To Dye the Feathers.—Blue is made thus:—Take two pennyworth of oil of vitriol, and mix into it two pennyworth of the best indigo in powder; let it stand a day or two; when used shake it well, and allow a tablespoonful of it to a quart of boiling water. Stir well, put the feathers in, and let them simmer a minute or two.

Before the feathers are dyed they must be put into hot water, and allowed to drain before they are put into the dye.

After they are taken out of the dye rinse them in cold water two or three times (red feathers only once), then lay them on a cloth in a tray before a good fire. When they begin to dry and unfold, draw each feather gently between the thumb and finger, until it regains its proper shape.

Yellow Feather Dye.—A tablespoonful of the best turmeric well mixed in a quart of boiling water; the shade will depend on the quantity of turmeric, and a very small quantity of soda will give an orange hue.

Green Feather Dye.—Mix the indigo with the turmeric dye, and let the feathers simmer in the liquid until they acquire the proper shade; or into the indigo dye add turmeric, and pour boiling water over it.

Pink Dye.—Put three pink saucers into a quart of boiling water, with a little cream of tartar. If a deep colour is required, use four saucers for a quart of water. Let the feathers remain in the dye several hours.

Red Feather Dye.—In a quart of boiling water dissolve a teaspoonful of cream of tartar, one teaspoonful of cochineal, and a few drops of muriate of tin. This dye is expensive, and scarlet flowers can be best made with the plumage of the red ibis, which can be obtained of a bird-stuffer.

Lilac Dye.—Put two teaspoonfuls of cudbear into a quart of boiling water; let it simmer a few minutes, and then put in the feathers. A small quantity of cream of tartar turns the colour amethyst.

Crimson Dye.—Dip the feathers in acetate of alumina; then in a boiling hot decoction of Brazil wood, and pass through a bath of cudbear.

Black Dye.—Dip the feathers in acetate of iron, and then boil in a decoction of madder and logwood. The white lily is a good flower for imitation.

Judson's dyes may be used with advantage, instead of the dyes we have mentioned, and save the trouble of preparation. (See page 22, vol. ii.)

BRINE FOR PICKLING MEAT OR FISH.—By reason of no defined system being generally known for ascertaining the intensity of brine, meat is occasionally spoilt, as it will become tainted in parts if the brine is not sufficiently strong to meet the temperature of the weather; the other extreme, of salting meat in very strong brine, is equally objectionable, as it renders the exterior of the meat disagreeably salt and hard, while the interior is next to fresh, the flesh remaining soft and unset. Much perplexity, too, is often felt by the housewife to decide whether the meat is sufficiently salted, as the time required for salting will depend on the intensity of the brine. This, too, may be saved by observing the simple yet scientific method which we shall prescribe:—In temperate weather brine should be composed of about twenty-four parts of salt to seventy-six parts of water, its specific gravity being to that of water as 1180 to 1000. Thus, by taking a bottle that will hold ten ounces of water, salt your brine until the same bottle holds eleven ounces and three-quarters. In very hot weather the brine should be stronger—twenty-eight parts of salt to seventy-two parts of water.

CELLAR MANAGEMENT.—I.

THE proper management of the cellar is, perhaps, a matter of slightly less interest and importance at the present time than formerly; there is now but little rivalry in old wine; large stocks in bottle in private cellars are comparatively rare, and any considerable quantity of wine in cask is still more so; in most middle-class families a few dozens of bottles merely being ordered from the wine merchant as required for use. Still, it is desirable that even a small stock should be managed with judgment, and though probably only a few of our readers possess foreign wines in the wood, we shall give some directions as to the proper care of them, since our remarks on that head will equally apply to the management of home-made wines which are to be found in cask in every cellar, and will, therefore, be of general interest. Some observations on cellar management are, moreover, especially called for in the HOUSEHOLD GUIDE, from the fact that in this department of domestic economy a complete revolution has of late years been effected. Some of the most cherished notions of our fathers upon this subject are now shown to be fallacies, and sounder canons have been established, which, though accepted among those professionally interested in the question, still require to be made known among the general public.

Construction of the Cellar.—Most of our readers will probably have merely to make the best of cellars already built; but where a new cellar has to be made, it will be well to attend to the following rules:—So far as is consistent with thorough drainage, a cellar should, for the sake of maintaining an even temperature, be completely sunk beneath the surface of the ground; any sudden change from warm to cold or the reverse being, for reasons which we shall hereafter explain, prejudicial to all kinds of fermented drinks. An underground cellar will rarely be too dry (though too much dryness where it does occur is a defect, since it will cause the staves and heads of casks to warp, and consequently their contents to leak); but there is frequently danger of too great dampness, and where this is the case the casks will rot and decay; growths of fungus and mouldiness will spread over woodwork and corks, infecting and corrupting the air, and eventually destroying the flavour of any delicate wine. Every cellar ought, of course, to be provided with a good drain or drains, thoroughly trapped for the exclusion of foul smells and vermin, but though this precaution will generally render the floor dry, it will not prevent dampness in the walls. To prevent or cure damp walls in a cellar is, in some soils, no easy matter, but if the natural slope of the ground will permit, the difficulty may often be overcome by sinking a drain round the house beyond the foundations, to a greater depth than the level of the cellar floor, and filling it to the surface with rubble.

A cellar should not be made under or adjoining a frequented street or thoroughfare; the constant vibration caused by passing vehicles does not permit of that perfect repose which is necessary to the proper maturing of wines, and the flavour of the more delicate kinds will inevitably be destroyed by it.

Provision for the admission of much daylight is neither necessary nor desirable. The openings to the external air should be few and narrow, and should look towards the north, that the rays of the sun may not unduly influence the temperature. The monks of the Middle Ages, who enjoy the reputation of having been judges of good drinking, observed this rule, and the abbey cellarage invariably faced to the northward. The windows should be few and narrow, and should admit of being opened or closed as may be required by circumstances. Strong currents of air through a cellar are extremely objectionable, because they always imply variations of temperature; but the old-fashioned idea, that a cellar should be close and

unventilated, is now exploded. It is now known that so far as good and sweet air can be circulated consistently with an even temperature, the better will it be for the wine. Provision should, therefore, be made by windows or holes in the door, or both, for proper ventilation; care being, of course, taken to close such openings against any extremes of weather, and indeed so to regulate them as to keep the temperature unchanged.

Unless the space and means at command are extremely limited, it is never desirable to form a very small cellar; where the room is exceedingly confined, it is almost impossible that the various necessary arrangements can be properly carried out. A tolerably large cellar will be found more convenient for even a small stock of wine, and will possess the great advantage of permitting more attention to cleanliness. Where it is probable that a considerable stock of wine will require to be kept, it will, however, be found better to construct two cellars of moderate dimensions than one large one. This is in order that the strong and the light wines may be kept separate, and that each kind may be kept in such a temperature as is best suited to it.

Temperature.—An unvarying temperature should be, as we have already remarked, so far as is possible, preserved in the cellar, all changes in this respect having a tendency to cause the wines to "sicken," or become turbid; it is, therefore, well to regulate the temperature by means of the thermometer. Strong wines of the South, such as port, sherry, Madeira, Malaga, Cyprus, Syracuse, Alicante, &c., require a warm cellar as compared with the more delicate wines of France. The cellar in which the former are kept should have a temperature of about fifty-five degrees, while that for champagne, claret, Burgundy, &c., should not properly be warmer than forty-four degrees; indeed, for champagne and sparkling Rhenish, a still lower temperature—one not higher than forty degrees—is held to be preferable, and is the temperature of the cellars in the Marne. An especial advantage of so cool a cellar for sparkling wines is, that it obviates the necessity for icing before bringing to table; for in iced wines the fine flavour is to some extent locked up and lost, and a high-class wine, when so treated, can scarcely be distinguished from a common one.

In cold weather, the cellar for strong wines will generally require to be heated by artificial means; but this should be done with due reference to the thermometer, and care should be taken not to heat it too much. A chafing-dish, with charcoal, is one of the most easy and usual methods of warming, but in a close cellar there is much danger from the carbonic acid gas which it generates. In the country it is better to provide a regular fireplace, and in towns, where gas can be laid on, there is perhaps no better, more uniform, or economical method of warming than by means of gas-burners.

Cleanliness.—Cleanliness in the cellar was formerly a point by no means insisted upon; filth and close air were, on the contrary, rather regarded as the most desirable state of things. This might, perhaps, have been a matter of comparatively little consequence when so hardy a wine as port formed the bulk of the stock kept; but now, when light and delicate wines are generally drunk, cleanliness in the cellar is recognised as a matter of much importance. It is now clearly ascertained that for the proper development of those chemical changes which take place in the maturing of wine, pure air is essential, and pure air it is impossible to secure without cleanliness. Any accumulation of filth, or of mouldiness, or other fungous matter must infect the air, and cause noxious gases, which will eventually affect and destroy the flavour of the wine. A cellar should, therefore, frequently be thoroughly scrubbed out, all drains should be carefully trapped to exclude bad smells, and the walls should be whitewashed every second year.

Arrangement of the Cellar.—For supporting casks strong stands should be provided, about a foot in height, and these should be placed perfectly upright, otherwise the lees will not settle as they should do in the middle of the belly of the cask; and when set in their places upon them, the casks should be well and tightly wedged up, that the wine may not be disturbed by any after movement. Some persons use wooden trestles or a framework of wood supported by brick piers, but the modern improvement of wrought-iron or cast-iron stands is to be preferred both as regards durability and as permitting greater cleanliness. These but little exceed the cost of wood, and are far better. The casks should be so placed as not to touch the walls in any part, since if they do so they are more liable to decay. If the size of the cellar will permit of so doing, it is well that sufficient space should be left between the casks and the wall to allow of a person passing between them for the purpose of examining the former; and, for the same reason, it is better that no two casks should be placed quite close together. Wine in the cask is always liable to fermentation, more especially at the equinoxes and in warm weather, and this may burst the casks or cause them to leak; they should, therefore, be often examined. The ear will frequently detect if excessive fermentation is going on; racking, or even a spurge-peg, inserted in time, will often avert the danger. If a hoop is found burst, a new one should, as soon as possible, be placed on the cask, and a temporary one may, in the interim, be formed of a stout cord twisted tightly by means of a stick put through it. A slight leakage can frequently be stopped with wax or grease; but if the leakage be considerable the only plan is at once to rack off the wine into another cask.

The bins in which to store bottled wines form a department of cellar-fitting in which modern science and ingenuity have made most important advances. Old-fashioned bins were made of brick or wood, and were close and unventilated, those of wood having the additional disadvantage of being liable to decay. In these the bottles were closely packed, the spaces between them being filled with sawdust, on which in course of time the damp acted till it became rotten, and fermenting, generated undue heat around the bottles. This system has now in large cellars been well-nigh superseded by bins of which the uprights are of open ironwork, and which are divided horizontally by bars and plates, on which the bottles are stacked, with sawn laths between each layer; the air being thus allowed to circulate freely around every bottle. The improved modern method of binning, however, for family cellars is that of cellular bins, which are wholly formed of open ironwork, and which give a separate rest for each bottle, thus providing at the same time free circulation of air and security from breakage. These bins are made of different forms, but the principle is the same in all cases. In some cellars it is desirable that the bins should be locked up, and where this is the case, they should be bought with lattice doors, which can be had at a small extra cost.

French wine bins are intermediate between the first-named iron bins and those on the cellular system; they have horizontal divisions of iron between each layer of bottles, but no vertical divisions or collars for the necks of the bottles; the bottles in the French bins being only kept in place by a slight curve in the iron bar on which they rest. Though more convenient than the lath bins, they want the security of those on the cellular system, and are chiefly recommended by their cheapness, which causes them to be much used in France. One of these bins in a cellar makes an excellent rack for empty bottles. They cost about two shillings for the dozen bottles.

The improved bins keep bottles in their proper horizontal position, but, where the old-fashioned method of binning has to be resorted to, care should be taken that

the necks of the bottles are not higher than the bottoms, or the reverse; for if the first happens, the corks will become dry and shrink, and cease to be air-tight, and in the second case the lees, which will continue to form in the bottle, will be always liable to mix with the liquid portion of the wine. Bottling, racking, and other operations will form the subject of another paper.

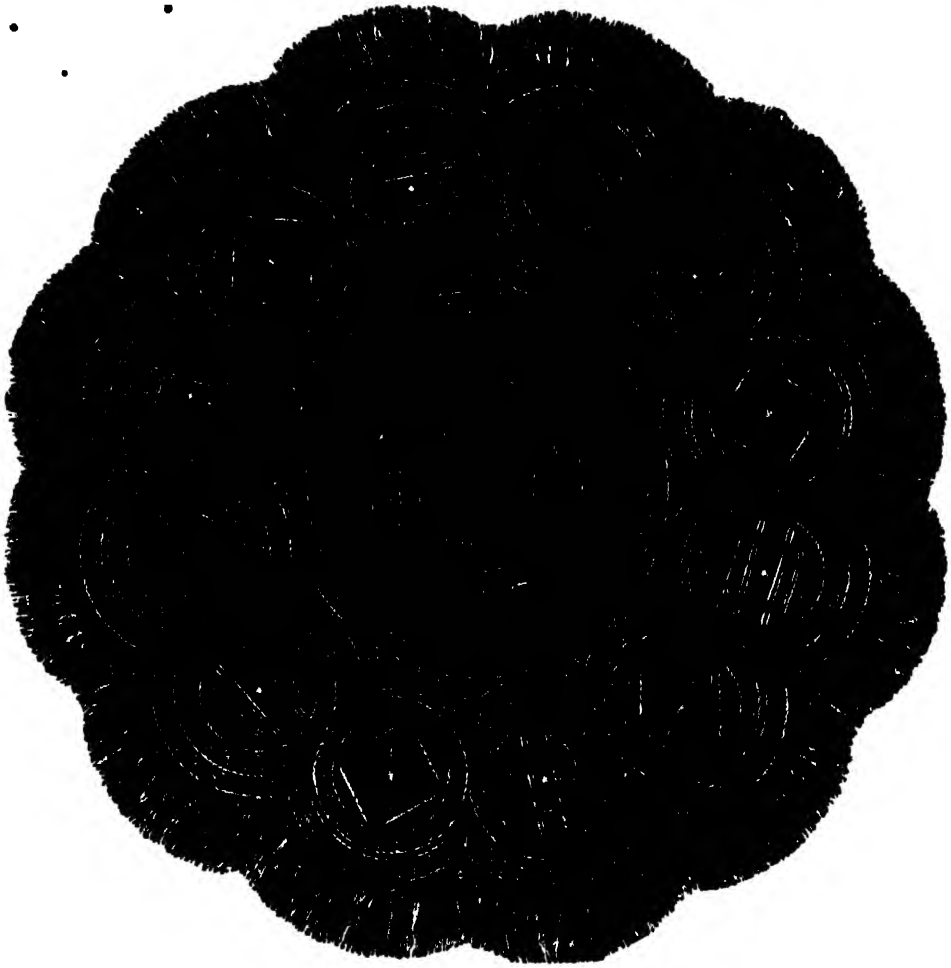
DESIGN FOR A LAMP MAT.

THE injurious effects of gas on the health are so well known, that for private use—when a very intense light is not requisite—oil lamps will, perhaps, always continue to be largely preferred, and the accompanying elegant design for a lamp mat will, no doubt, be useful to many of our readers.

The ground is of black rep silk; the ornamentation, which may be described as of the Byzantine order, is carried out in gold and various-coloured silks, or rather gold and silk cords applied to the surfaces to form the pattern.

After the design has been transferred to the silk, the next proceeding is the forming of the medallions, which is done in this manner—the inner circle and every alternate one outwards (those drawn light in the engraving) are of gold, the intermediate ones of green silk, which stand between two rows of alternate blue and red tufts. This explanation serves also for the large circles in the centre, and likewise for the small figure contained in it. The centres of the medallions round the edge differ alternately; in the one case they consist of a figure run in and out in green and red cords, the crossing-points of which are caught across with a single stitch of white silk; in the other, as in the centre, a square of coloured silk encloses another figure, the rim of which is yellow, the centre blue silk. The several arrow-like ornaments scattered through the pattern are carefully worked on the silk ground in various colours. The edge of the mat terminates in a fringe consisting of silks of all the colours used in the pattern, and occasional threads of gold.

Before affixing the fringe, however, it would be as well to mount the whole on a stout piece of millboard, on the bottom surface of which a piece of green baize has been pasted. This is done by stitching through both silk and board, but in such a manner that the stitches do not show.



DESIGN FOR A LAMP MAT.

THE HOUSEHOLD MECHANIC.—XLII.

PAINTING (*continued from p. 135*).

Whitelead.—Whitelead may be said to be the chief of paints, as it is the basis of all paints, no other substance yet discovered being found equal to supply its place. In the first chapter on "Painting" we spoke of the adulterations commonly practised on the article of whitelead and in the mixing of paint. It is not sufficient, however, to be aware that such adulterations exist; the household

mechanic should possess a competent knowledge of every material he has to work with. We do not purpose to give in detail the several methods by which whitelead is manufactured and prepared, nor yet how it may be analysed, as these subjects would occupy too much space, and, after all, might prove uninteresting to the painter. The following practical remarks, however, will be found interesting as well as instructive.

The two grand processes by which whitelead—a carbonate or oxide of lead - is manufactured are styled the English and the Dutch. Of these the English is to be preferred, as in the Dutch process, by reason of dung being used in place of tanner's bark in forming the stacks, the lead is darkened by the sulphuretted hydrogen evolved from the dung. It was formerly customary to grind the lead into an impalpable powder and make it into cakes, but in consequence of the injury inflicted upon the health of the men employed in its preparation, this practice has been generally discontinued, a small quantity only being sold in the form of dry whitelead. It is now customary to compound the carbonate of lead with linseed oil by means of a kneader—a cylinder wherein a square iron bar, furnished with arms, is fixed longitudinally, and worked by machinery. When mixed, this paste, consisting of whitelead and oil, is ground, in order to render the components more homogeneous. The purest whitelead only is suited for internal decoration, which requires fine paint, the coarser whitelead being employed for exterior work and commoner purposes. There is no substance equal to pure whitelead for mixing with oil and making paints. It is a pure white, and keeps its colour; it moreover mixes with most colours without damaging them or being damaged by them, and innumerable tints are to be produced by admixture of colours with it. Neither light, oxygen, nor pure air affects it, but it is deteriorated to some extent by sulphuretted hydrogen, damp, and impure air. No other substance as yet discovered possesses equal body when ground in oil, and none will cover so well; indeed, two coats of pure whitelead cover better than three or four of any other substance. The most judicious way to employ whitelead as a white paint is to mix it with linseed oil alone. In this way it is most durable, is least liable to chip, crack, or peel off, and keeps its colour best. The colour is considerably improved by a small quantity of black or blue being added to it in mixing. When mixed it should be strained through a fine sieve before being used. Pure whitelead is distinguishable by the purity of its colour, its density and solidity, and by possessing no spongy or granular appearance. Whitelead is improved by being kept, old being preferable to new, although, if good, new answers sufficiently well for all ordinary work. The superiority with regard to solidity which old whitelead possesses over new is attributable to the evaporation of some of the water contained by it, and its consequent solidification. This solidification is singularly observed when opening a cask which has been packed a long time; the whitelead will be found to have sunk and to be considerably diminished in bulk, or solidified New whitelead is to be distinguished by its softness and oily appearance. We customarily add about a third turpentine in mixing whitelead for finishing paint, as it aids its working in painting. To make good flatting, as little oil should be contained in the paint as possible. It is a good plan to beat up the lead in turpentine, and leave it to stand for ten or twelve hours, when the oil with which the carbonate of lead was ground will rise to the surface, and can then be skimmed off. More turpentine can of course be afterwards added to render the flatting of the proper consistency.

In estimating the qualities of whitelead, we have observed that it is a dryer or siccative when mixed with oil, since, if mixed with linseed oil, the paint formed by this composition dries quicker than the oil alone would do.

The following are prices of whitelead and white zinc ground in oil:—Whitelead, *genuine*, 32s. per cwt.; ditto (No. 2), 31s. per cwt.; ditto (No. 3), 30s. per cwt.; ditto (No. 4), 29s. per cwt. White zinc (No. 1), 34s. per cwt.; ditto (No. 2), 30s. per cwt. Prices of dry colours—whites:—Whitelead, 30s. and 31s. per cwt.; flake white, 10d. per lb.; Cremnitz white, 1s. per lb.; white oxide of zinc, 34s. to 36s. per cwt.; Paris white, 12s. per cwt.; town whitening, 30s. per ton, or 2s. per cwt.; gilders' whitening, 45s. per ton, or 3s. per cwt.

Preparation of Whitelead.—Pure carbonate of lead may be prepared by precipitating a solution of pure acetate or of nitrate of lead with another of a carbonate of an alkali, filtering off the solution, washing the residue thoroughly, and subsequently drying. The mass so obtained is a white powder, almost insoluble in water, but able to be dissolved with evolution of carbonic acid in nitric, hydrochloric, acetic, and other oxides, which yield with this base soluble salts. Those salt radicals, which constitute with the metal or its oxide insoluble salts, decompose the carbonate, set free the carbonic acid, and form an insoluble compound. Such are oxalic, sulphuric, and hydrosulphuric (sulphide of hydrogen) acids, &c. Even water impregnated with carbonic acid readily causes the carbonate of lead to dissolve, but in this instance there is no escape of carbonic acid, but an assimilation of that contained in the water. By the action of heat, as already signified, it is convertible into litharge or redlead, according to the intensity of the caloric and the duration of its application. Produced according to the above method, it is a compound of one equivalent of oxide of lead and one of carbonic acid; sometimes, however, it is met with a basic carbonate—that is, a carbonate wherein is contained a proportionate quantity of base without being assimilated with its equivalent amount of carbonic acid. Sometimes, when prepared on a large scale by certain processes, more or less acetate or sulphate and oxide of lead are found in it, but their quantity will be proportionate to the purity of the compounds and care bestowed in the manufacture.

Composition of Whitelead.—From multiplied analyses by several well-known chemists, of the English and foreign whitelead of various factories, it appears that its composition is almost invariably two equivalents of the protocarbonate of lead united with one of the hydrated oxide, and agreeing with the formula $2\,(PbO, CO_2)\,PbO, HO$.

Occasionally, a species of whitelead is produced by the Dutch method, which yields on analysis numbers corresponding to the formula $3\,(PbO, CO_2)\,PbO, HO$, that is, three equivalents of the protocarbonate to one of the hydrated oxide of lead. It has a loose friable texture when drawn from the heights, quite distinct from the hard crates of whitelead obtained when metal is almost wholly converted, and is invariably the result of defective corrosion of the metal. This kind of whitelead does not cover so well as the hard lead.

Analysis of Whitelead.—The analysis of whitelead, as taken from the metal or from the drying-house, is very simple, but becomes more difficult in the form of paint; for then not only do the oleaginous matters present inconveniences, but, generally speaking, various other mixtures, such as sulphate and carbonate of baryta, sulphate of lead, antimonial compounds, &c., are incorporated. It suffices, when the compound is dry and uncombined with oil, to dessicate a known portion of the average sample, reduced to a fine powder, in a water-bath as long as it continues to lose weight, and note the loss thus sustained. The crucible may then be exposed to a dull red heat, for the purpose of expelling the carbonic acid, weighing as in determining the water, and when this is done, setting down the loss before heating in the flame and after. To insure that the whole of the carbonic acid

is expelled, two weighings after prolonging the heat should correspond. Pure whitelead yields :—

Oxide of lead	86·377
Carbonic acid	11·310
Water	2·313
	100·000

Now, if the percentage of water and carbonic acid in the sample examined coincide with these numbers, it will be evident that the sample is pure; but should the amount of carbonic acid found be greater than that given, it is a sign the preparation, though not adulterated, is still of inferior quality, since the proportion of the carbonate is increased in relation to the oxide present, and consequently, if used as a paint, it loses in body through this constitution. Since a difference of 0·7 per cent. of carbonic acid over the foregoing numbers in the analysis indicates that another equivalent of carbonate of lead is associated with the same weight of hydrated oxide, it is evident that the utmost care must be exercised in making a true estimation of the carbonic acid and water. If the latter should not be wholly expelled before experimenting for the carbonic acid, it is plain that an error would be made in the results, since any residuary moisture will be estimated as carbonic acid.

CAGE-BIRDS.—VIII.

THE LINNET (*Fringilla cannabina*)

BEFORE commencing writing respecting the linnet, we may notice how incorrect the statements of many noted writers are with regard to this bird. One naturalist says, "Instructed by long experience and the observations of many years, I hope to show that the linnet, the mountain linnet, and the greater redpole are one and the same species." Various other writers have stated this as a fact, probably on this authority, and proved they were not good practical bird-fanciers.

The call-notes of the linnet, the twite (mountain linnet), and the greater redpole are unlike; a bird-catcher could distinguish each on flight from its call-notes, and the linnet's song is very superior to the twite or either kind of redpole. Still there is no doubt that they are easily taught to imitate the songs of other birds. Dr. Brehm says, "We have heard a brown linnet that could perfectly imitate the song of the chaffinch, and another that exactly copied the notes of the siskin. Naumann mentions instances of its having even learnt the song of the goldfinch, lark, and nightingale."*

Birds caught in April, having their summer plumage, often resemble those he describes, others are brighter red. They are sometimes matched, if they live, with hen canaries, and sometimes prove useful in breeding linnet mules, very sweet song-birds. Young birds—nestlings or branchers—if properly reared, sing far better and more freely than such birds. Birds such as he describes may be bought at low prices, particularly in winter; when fresh caught they may be purchased at less than sixpence each. Young birds, when fresh caught, may be purchased nearly as cheap; but the following spring and the remainder of their lives the young birds will sing more freely, and we have ourselves known them to sell for more crowns than those the learned doctor has described would for shillings.

This favourite bird is five inches and a half in length, of which the tail measures two and a half inches. The feet are a dusky black, the back a dark brown, and the tail brown, edged with white; the head ash-colour and dark brown, the iris dark brown, and the beak greyish, but becomes, as the bird comes fully into song and the summer approaches, of a dark blue colour. Flight birds, which are generally caught from March to June, have very blue beaks.

* See "Cassell's Book of Birds," vol. i. p. 123.

These birds build their nests among the furzes on heaths, commons, &c. The nests are comprised of dried grass, small twigs, and moss externally, and lined with wool and hair. The eggs (in number about four or five) are of a pale green colour. They have two or three nests each season. They sometimes commence laying early in April, and some of the young ones we have seen—raised as nestlings or caught as branchers—have learned the song of the woodlark (and fetched high prices), the skylark, the titlark, and the robin. In Germany, it is said, they are sometimes taught to whistle tunes; but such birds we never heard in England. The following are the designations and distinctions of these birds :—

Nestlings, so called from being taken in the nest and reared by hand. They are fed five or six times each day on scalded rapeseed and soaked bread (fresh daily) until they can feed themselves. A flat-pointed piece of stick is used for this purpose.

Branchers.—Young birds that have been caught when a few weeks old, after they can feed themselves, and fly freely before they have moulted. They are to be purchased from June until the latter end of August. They are hardier, and require less care than nestlings. They are easier tamed, and acquire song better than flight birds.

Flight Birds.—Those that have moulted in the field bear this appellation. About September, when most of the birds have moulted in the field, they collect in large numbers. The males are distinguished from the branchers by having some reddish feathers on the breast and head. About September the birdcatchers go out with their nets and call-birds, and catch these birds and various others in large numbers. The dealers purchase them, and sell them at low prices. The males caught at this time have not such rich plumage as these that are caught about April or May, having their summer plumage; but the latter have perhaps paired, and oftener die than those purchased in autumn, or while on flight. Because some of the male linnets have at certain seasons of the year yellow as well as red on the breast and crown, some of the writers have supposed them different birds; they are also supposed to be old and beautiful song-birds: they are often neither old nor good song-birds.

Food. The proper food for linnets is rape and flax seeds; occasionally, particularly for fresh-caught birds, a little crushed hempseed and mawseed; they are also fond of ripe plantain.

To Select a Male Bird.—Open either wing, and if the feathers are white up to the quill, you may rest assured it is a male. Females never have feathers tinged with red on the breast. The sex of young birds can only be ascertained by the wing.

Toys and Properties.—In former times both the calls and the song of linnets were well understood, and the fanciers used to denominate them "properties" and "toys." At the present time but few possess good song-birds; if they possessed them, they would know but little of their properties and toys.

Breeding Linnet Mules.—When persons commence breeding linnet mules, and cannot procure linnets that have bred with canaries, they should procure several linnets with summer plumage caught in April. If they live a week, they can pair them with forward hen canaries, and they will be likely to match and have some young birds that will sing sweetly.

Cages.—The cages we prefer for these birds are designated "pediment cages," having bottom, back, and top of wood, and may be procured of various sizes. Fanciers who take their birds to sing matches, and carry them about the streets in handkerchiefs use back cages, which are too small for birds generally.

HOUSEHOLD DECORATIVE ART.—XXXIX.

LEAF-WORK.

THE art of decorating cabinets, work-boxes, and other small fancy articles of wood with pressed and dried natural leaves is so old, as almost to have passed from the memory of the present generation, yet it is for many reasons well worthy of being revived, and of finding a place in the HOUSEHOLD GUIDE series of "Household Decorative Arts." The effect produced is always pretty and pleasing, the process is simple and easy, and to those who live in the country or are accustomed to take walks in the fields, it affords an interesting pursuit, and leads to an observance of and a pleasure in the beautiful forms of the vegetable world. It consists in arranging and fastening dried leaves to the face of the wood-work in such patterns and borders as may please the fancy of the decorator. These when varnished over are permanent, and when arranged with judgment and good taste are very effective.

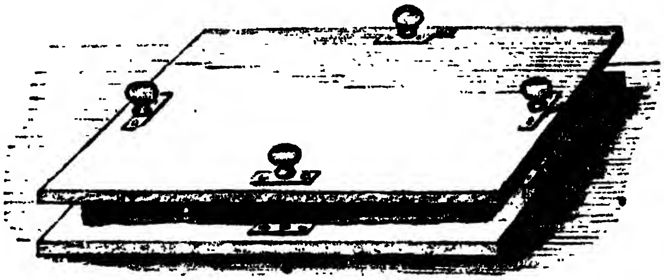


Fig. 1.

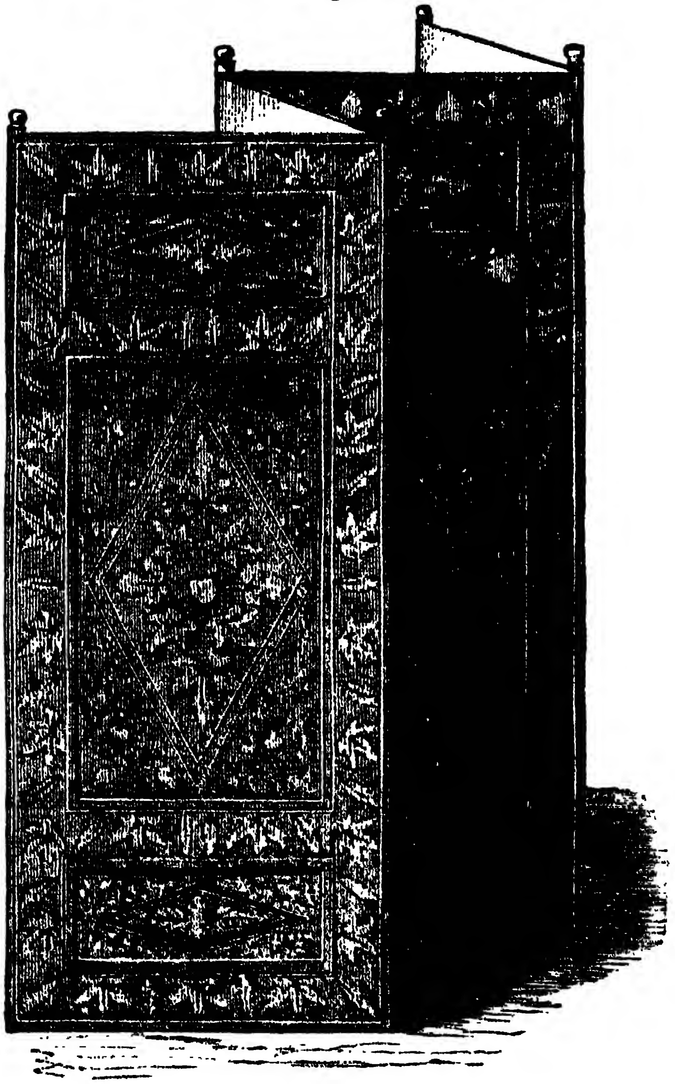


Fig. 4

The fittest woods for decoration are simple deal or pine, stained black; pine is best, as being most even in its grain, and as being susceptible of receiving the finest stain. If the reader is an amateur carpenter, as are, we trust, many of the subscribers to the HOUSEHOLD GUIDE, he will find no difficulty in making various articles for the purpose of decoration himself; or if not, since for properly showing the beauties of the leaves, such articles should be simple in shape, they may be made for a trifle by any neat carpenter. The best method of staining the wood black, so as to give it a close resemblance to ebony, is with decoction of logwood and iron dissolved in vinegar, and full directions for doing it may be found in our articles on "Wood Carving" (see page 184, vol. ii.).

The leaves best suited to the purpose are those which are symmetrical in form, and which are most pleasing in outline. Deeply serrated leaves are better than those which more nearly approach a plain oval. Very large leaves should be avoided, and even those of medium size should be used sparingly; in decorating a folding screen or similar wide surface they may look well, but generally, and always for small articles, leaves of a small size look best, and most readily combine into patterns. The selection of the kind of leaves to be employed is, however, rather a matter for individual taste. Many, though not all, should be gathered in the autumn, when deep red and golden hues prevail, for the bright greens of spring and summer cannot be preserved, and the leaves gathered at those seasons will fade to a pale brown tint, not unpleasing in itself, but still needing to be enriched with deeper and warmer tones.

For drying leaves, there is no better contrivance than the "botanist's press," shown in Fig. 1. Such a press, of a convenient size, eighteen inches by fifteen, could be made by any carpenter, and would cost from three shillings and sixpence to five shillings. By taking out the four screws the upper board may be removed, and the leaves laid in between sheets of clean blotting-paper. When the upper board is replaced, and the screws tightened, the blotting-paper absorbs the vegetable moisture of the leaves, which are smoothly and neatly pressed. In default of such a contrivance the leaves may be prepared by laying them between blotting-paper, and then placing them under a pile of books or other heavy weights; but between the pages of books they should never be laid, the moisture will discolour and eventually destroy those parts which it touches, although at the time it may not appear to injure them, and the bindings also will be strained and forced out of place. Blotting-paper, on account of its porous and absorbent nature, should always be used for drying.

It is well that a considerable number of leaves should be pressed before beginning to fasten them to the wood,

that there may be a good variety to select from; and by spreading on the table a sheet of paper as large as the surface to be decorated, and arranging the leaves upon it, it is easy to alter their positions till a pleasing pattern has been produced. When the eye is quite satisfied with the arrangement, they may be taken up one by one, the back brushed over with a soft camel-hair brush dipped in gum arabic, and the leaf transferred to the same relative position on the cabinet or other article which has to be decorated, when it can be pressed down, and any superfluous gum absorbed by a pad of blotting-paper. The leaves, it must be remembered, are fragile, and require careful handling. After the whole of the leaves composing the pattern have been neatly and securely fastened on, and the gum has become dry, a coat of copal varnish must be laid with a soft camel-hair brush lightly over the surface, and the work will be complete.

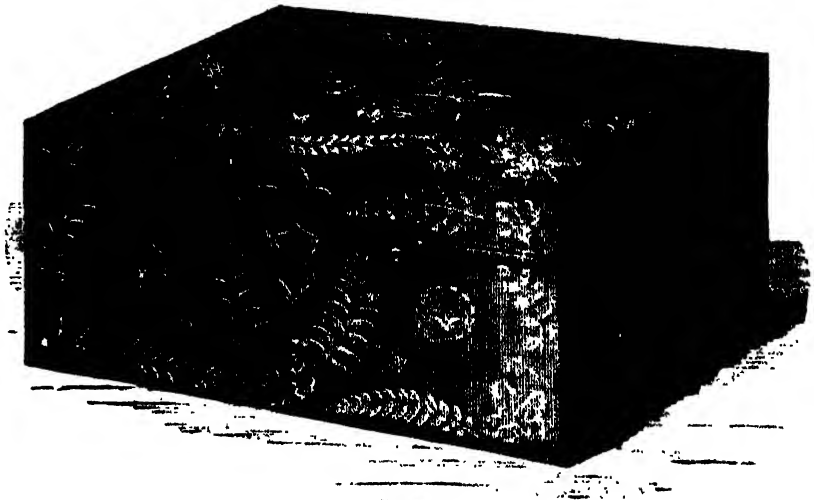


Fig. 2

The effect of the leaf-work may very frequently be increased by lines and ornamental patterns being traced upon the woodwork in gold before fastening on the leaves; and our articles on the "Art of Illuminating" will supply information as to the various methods of gilding; or the lines, &c., may be drawn upon it in brown oil-colour. These lines, as shown in our illustrations (Figs. 3 and 4), will separate the portions left to be filled with leaves, and give greater distinctness, and consequently greater beauty to the work. The gilding or painting will require some slight accuracy of eye and hand to execute it properly, and if the decorator cannot do it neatly and regularly, he would do better to confine himself to the use of leaves.

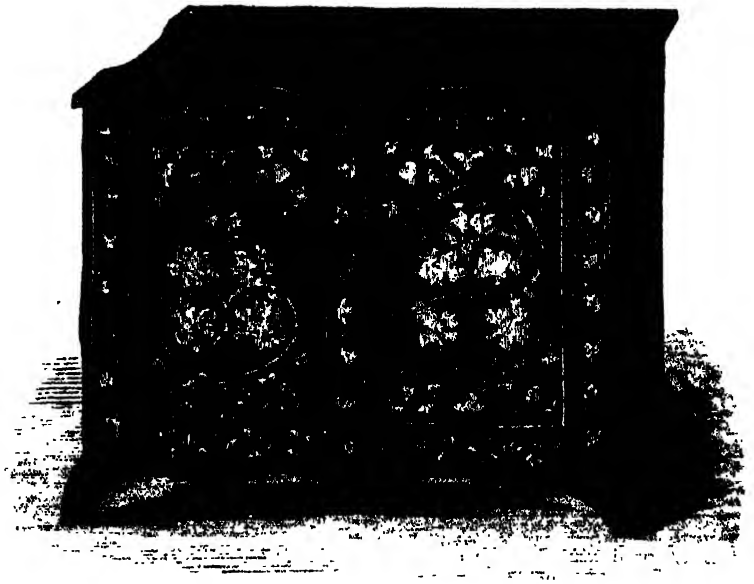


Fig. 3.

In making his arrangements the decorator will not be guided by considerations of form alone. He must also pay attention to the proper gradation of tints; and much of the effect of his work will depend on the variety and harmony of colour which he thus attains.

Of all things, perhaps, small tables and other cabinets are best adapted to this species of decoration. Work-boxes, tea-caddies, writing-desks, and similar articles look exceedingly well when new, but the handling to which they are subjected tends to wear off the varnish, and subsequently the leaves. Picture and looking-glass frames may be made in this manner, and look and wear well. Among larger articles of furniture nothing is so well fitted as a folding screen to be enriched with, and to show the full capabilities of leaf-work. In Fig. 2 we show a work-box decorated by this process, and in Figs. 3 and 4 a table-cabinet and a folding screen. The ingenuity of our readers will readily suggest other articles to which leaf-work is applicable; and they can scarcely fail, if our directions are carefully followed, to be pleased with the result.

TO CLEAN PICTURE-FRAMES.

THE following is a good method:—Take one drachm (about as much as will lie on a shilling) of soft soap, and mix it gradually with half a pint of soft water (i.e., rain-water, or water that has boiled and been allowed to get cold; put the mixture into a bottle and shake it well up, then add half a wineglassful of spirits of hartshorn, and again well shake the ingredients. The gilt frame that is to be cleansed may now be brushed over with this liquid, taking care, however, to use for that purpose the very softest camel-hair brush that can be procured. After the liquid has been on the frame a minute or two, using a slight brushing to the dirtiest and most intricate parts of the work, it should be freely washed off with plenty of clean soft water, and allowed to dry of its own accord. The drying should be accelerated by placing the frame in a draught or where the sun shines on it. Next day, the bright parts of the work may be very slightly rubbed with a new wash-leather, which will enhance their brilliancy. It may be necessary to observe here that pictures and glasses should be taken out of their frames during the cleansing process.

GARDENING.—XXXIII.

THE ONION.

THE common onion is a plant so universally known that a general botanical description would certainly be superfluous and useless, yet to describe the different varieties is indispensably necessary. The chief varieties, or, rather, those chiefly cultivated, are as follows:—

The *Deptford*, which is middle-sized, globular, and of a pale brown colour.

The *Globe* is large, globular, pale brown tinged with red, mild in flavour, and keeps well.

James's Keeping Onion, large, pyramidal, brown tinged with red, mild, and keeps well.

The *Strasburg*, oval, large, light red tinged with green, hardy, keeps well, but of strong flavour; much the most cultivated.

The *Portugal Onion* is large, flatly globular, mild, and does not keep well.

The *Spanish*, large, flat, white tinged with green, but does not keep well.

The *Brown Spanish*, differing nothing from the last save in colour, which is brown, silver-skinned, flat, middle-sized, and shining, one of the best for pickling.

The *Blood Red*, middle-sized, flat, very hardy, deep red, of a strong flavour, and keeps particularly well.

The *Welsh Onion*, hardy, does not bulb, but is sown in autumn to draw in spring, and is strong-flavoured.

The Portugal and Spanish are considered the best for early use, and yield large crops; but the Deptford, Strasburg, and Globe, are the best for principal crops, as they yield well, and keep longer than most others in the spring. The silver-skinned is reckoned the best for pickling. The Welsh onion is generally sown at the latter end of summer, about September, to draw in spring as scallions. Young onions in spring are used in salads, and when bulbed and mature, in soups and stews, and for these purposes are cultivated by every class of society in Europe.

The onion delights in a rich mellow soil on a dry subsoil, and on such it attains a good size; but for picklers the soil should be poor. For a bed five feet by twenty, two ounces of seed will be required; but when sown for a full crop, one ounce of seed will be sufficient for a bed twenty-four feet long by five wide; and for a bed the same size, to be drawn off for transplanting in the spring, three ounces will not be too much. March, if the weather be fine and open, is the best season for sowing the seed for a full or main crop. For this purpose allot an open compartment of ground, and form it into beds of convenient widths, say from three to five feet, and sow the seed in the above proportion, raking it in evenly, lengthways of the beds, being careful to cover the seed well among the mould. Keep the beds at all times very clear from weeds, and when the plants are three inches high, thin them out, leaving the plants standing at five or six inches apart for a full bulbing crop; but a portion of the bed should be thinned out to three inches asunder, in order to allow for drawing a few while young for present use, by successive thinnings until the plants in that portion, like the former, are five or six inches apart. The plants will begin to bulb in June, and attain full maturity in August, which is discovered by the leaves beginning to turn yellow and decay, and the shrinking of the neck, when they may be pulled up. Spread on a compartment of dry ground in the full sun, to dry and harden completely, turning them over every two or three days, and in ten days or a fortnight they will be ready to store up for winter and spring use. The grossest part of the top must be cleared off previously to storing, and frequently turned over and the decayed ones picked out.

Onions should be grown at twice; the seed for the second crop should be sown late in the summer and the small bulbs so produced planted the following spring, and they will be found to be much more superior in size than when grown the same year; which circumstance may be accounted for on this principle, that the bulb generates the first season the sap or vegetable blood which composes the leaves and roots the following year, consequently, it possesses much more strength and vigour than the seed.

The best sorts for this purpose are the Spanish and Portuguese. The middle of June is the best time to sow, and for this purpose select a dry compartment of ground in the shade, and where the soil is poor, and after digging it divide it into beds four feet wide, and sow the seed thick, allowing as a rule three ounces for every one hundred and twenty square feet. Keep them clear from weeds, but never thin them, and when they ripen in autumn they will not be larger than peas; gather them and dry them thoroughly, and put them by till spring, when they will have to be transplanted.

The ground, both for this crop and the spring-sown ones, must be rich and mellow, and of a loamy nature. Exhausted ground must be enriched with well-decomposed stable dung, and not such as has been but recently removed from the stable. The manure should be spread on the ground in the autumn, and the said soil well dug over twice or thrice in the winter, to mix and incorporate the soil and manure. In the beginning of March, or, more properly speaking, just at the time the bulbs show an inclination to vegetate, dig as much of the plot as will serve for one bed, and plant it immediately, first stretching a line lengthways on one edge of the bed, then, having the bulbs in readiness, place them along the line on the surface, six inches apart, without inserting them, and immediately cover them with fine mould, rotten dung, tanners' bark reduced to mould, or any other light compost, about half an inch thick, and then remove the line six inches further on, and plant another row in the same way, and so on till the whole is complete, and should the weather prove dry, water them gently every now and then. The plants will soon begin to appear through the covering, when the soil may be stirred about them by light hoeing, being careful at the same time not to cut or wound any of the bulbs in the operation. They will be at their full growth about the same time as the spring-sown ones, and the same criterion is to be observed as to their maturity, after which they must be managed in the same way in all respects.

To have young onions to draw off in spring, for salads, &c., the Deptford and Strasburg are the most suitable of the bulbing kinds, but the Welsh is the most hardy. For this purpose allot a spot of ground that is rather lighter than that used for the summer crop, and lying on a dry subsoil and in a warm sheltered situation: the beds may be three or four feet wide, to suit convenience. The best time for sowing is the same as that for cabbage seed—namely, any time during the month of August, making a general rule to moisten the soil previous to sowing the said seed. Distribute the seed very thick, and rake it in evenly, without treading, as recommended and practised by some.

As soon as the plants are well up, weeding must be carefully attended to, before the weeds spread and overrun the ground, but the plants should not be thinned, but remain thick for their chance in winter, and to be thinned by degrees as required for salads in spring. The Welsh onion must be sown and managed in the same way. Any of the bulbing kinds remaining unthinned in the spring, that is to say, in April and May, should be at once thinned out to six inches apart in every direction, and kept entirely clear of weeds, with which treatment they will form nice ripe bulbs in June and July.

To procure onion seed, October is the best season to prepare for it, by selecting some of the largest, soundest, and firmest roots or bulbs possible, and after choosing an

open situation, dig or trench the ground evenly, and tread or divide it into beds four feet wide; then draw three drills four inches deep on each bed, and insert the bulbs at the bottom a foot apart, and cover them in directly afterwards. They must be kept clear from weeds, and they will soon shoot up into seed stems, when they will require to be supported with stakes and ties, and they will ripen seed in August and September, when it must be cut, placed on a cloth to dry and harden thoroughly, after which it may be rubbed out and placed in bags for use.

The Potato Onion.—In respect to the culture of the potato onion, it is propagated by the root, which should be planted in an open compartment of rich ground that lies high and dry, and having dug or trenched it, form it into beds three or four feet wide, and plant three rows on each bed, placing the bulbs a foot apart in the rows. Instead of inserting the bulbs within the ground, place them on the surface, and cover them with light mould, tanners' bark, or well-rotted dung, just so as to leave the crowns of the bulbs visible. They will require no further care till they have shot up their tops two or three inches high, when they will require to be hoed up in the same manner as you would do potatoes, and kept clear from weeds until they are taken up. The smallest onions swell to a large size as well as yield offsets, but the middle-sized and larger bulbs always produce the greatest clusters.

The Tree Onion.—This species of onion does not produce a bulbous root, but throws out numerous offsets. Its top bulbs, if we may so term them, are very greatly esteemed for pickling, being considered far superior in flavour to the ordinary or common onion. Be this as it may, our mission is to direct in the cultivating line only, and as such we will proceed to do so. It is propagated both from the top bulbs, which are best planted about the latter end of April, and by root offsets, which may be planted during the months of March and April, or September and October. The old roots are the best to plant again for a crop of bulbs, as they are the most likely to run to stems. These should be planted six inches apart in rows or drills, a foot asunder and two inches deep. Such as were planted in the autumn will have shot up leaves early in the spring, and their bulbs will be in proper condition for gathering in June or July at the latest. Those that were inserted in the spring will have made their appearance somewhat later, and consequently they will not be in a fit condition for gathering till the end of July or beginning of August.

As a rule they should not be gathered either for planting or keeping until the stalks decay, at which time, or even in the spring, if only of one season's growth, the roots may be lifted or taken up if needed for planting, but when they are two or three years old it will be necessary to reduce them in size, or otherwise they will run to branches of a spindling nature. To avoid such a calamity we make it a practice to form a new plantation annually with single offsets. The bulbs as soon as gathered must be gradually dried in a shady place, and if kept free from damp will continue in prime condition until May, or even later.

DOMESTIC MEDICINE.—XLIII.

INFLAMMATION OF THE LUNGS.

THIS is not a very uncommon disease in winter, and as it is a serious one, and acute in its character, requiring medical advice of the best kind, a few words of description will be proper here.

The lung is a light sort of tissue filled with air. When you tap with the fingers over the chest of a person whose lungs are in health, you get a clear sound, as of that of a body containing a good quantity of air. But when inflammation occurs to a portion of the lung, it gets solid, like a piece of liver, so that when you tap on the chest over it you get a dull sound instead of a resonant one. What are the symptoms which accompany this change in the texture of the lung? They are the ordinary symptoms of inflammation—viz., a shivering, followed by fever; some dull pain in the side affected, perhaps it may be a sharp pain; the breathing is quick and short, and the slightest exertion dilates the nostrils; more or less cough and expectoration. If the patient is old enough to expectorate, the expectoration will be found to have a brownish or reddish tinge—what is called by doctors a "rusty" colour. This comes from an admixture of blood with the expectoration. The fever runs very high in this complaint, in fact, a peculiar pungent heat of the skin accompanied with the above symptoms is almost characteristic of this disease. The high temperature often leads the intelligent physician to guess its existence before he has used his stethoscope or tapped upon the chest with his finger, both which methods of observation yield results very simply consistent with the laws of sound. If the lung by inflammation has been rendered solid, or more solid than usual, it transmits the breathing, or the voice sounds in a very loud and exaggerated form. On tapping with the finger, as we have said, over the affected part (which is generally at the middle or lower part of the chest, posteriorly oftener than anteriorly) the sound elicited is dull—duller than over the corresponding part of the opposite lung.

Such, then, are the general symptoms and physical signs of the disease. Of course it is only since the use of the stethoscope that it has been possible to be so particular in distinguishing this disease from other inflammations of the chest: to wit, pleurisy and bronchitis. The disease is very common in winter, though not nearly so much so as bronchitis. It affects children and grown-up people.

Causes.—It is one of the diseases that occur much more frequently in winter and spring and autumn than in summer; therefore cold is a principal cause of it. This is the reason why children catch it so often, as it is the fashion and the pleasure of mothers to clothe them imperfectly, so as to see their nice limbs. They do this partly, too, with the notion of making them hardy. But children are much less able to resist cold than grown-up people, especially young children that are incapable of keeping themselves warm by exercise. People of a delicate constitution should be more careful than others not to get chilled by cold.

Treatment.—This disease requires the warmth and rest of bed, a room with a comfortable temperature, light nourishment, large warm linseed poultices to the chest, a good nurse, and a wise doctor. A great discovery has been made by doctors of late years in regard to this disease—viz., that it is not very fatal in its tendency if it is well treated, and not over much treated. The old physicians used to over treat the disease; they used to think it very deadly, and they used deadly strong measures to oppose it. But it is not very deadly, and does not require all the bleeding and blistering, and other active treatment which the old physicians thought necessary. The above measures indicate the domestic treatment of the disease, for the rest a doctor will advise. But we may append a prescription for the benefit of those who are on the sea, or in any remote part with such symptoms as above:—Citrate of potash, eighty grains; ipecacuanha wine, one drachm and a half to two drachms; spirits of nitre, three drachms; simple syrup, four drachms; water, enough for eight ounces. Mix. Two tablespoonfuls every three or four hours in as much water.

For children of two years and upwards, with quick breathing and very hot skins, and hard coughs, the following prescription may be used in the absence of advice:—Citrate of potash, twenty-four grains; ipecacuanha wine, one drachm; spirits of nitre, one drachm; syrup, half an ounce; water, to three ounces. Two teaspoonfuls every four hours.

CHILDREN'S DRESS.—XVI.

CLOTHING FOR A GIRL OF EIGHT (*continued from p. 46*).

FOR out-door wear, as a mantle, a little girl of eight years of age may wear a tight-fitting jacket; one nearly tight, called a *demi-adjuste*; or a loose paletôt. These may be made of cloth and trimmed with velvet, or of velveteen, lined with red flannel for the winter. For summer, they can be made of black silk, trimmed with silk passementerie, beads, and fringe; or they can be made of muslin, or of material corresponding with the dress of the young wearer.

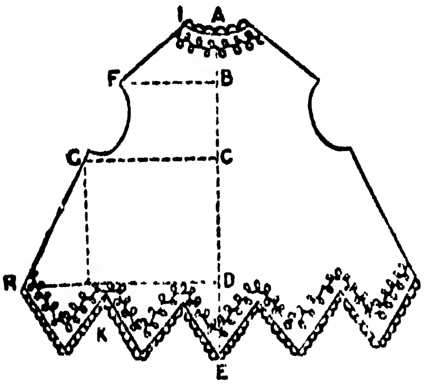


Fig. 1.

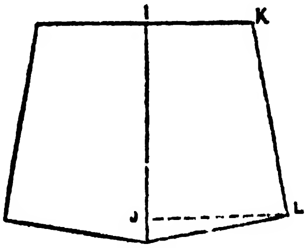


Fig. 8.

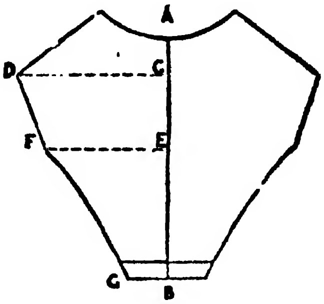


Fig 7.

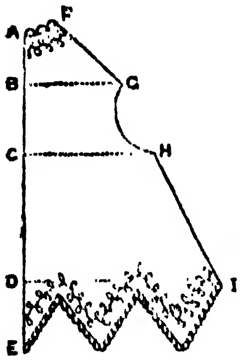


Fig 2

Fig 3

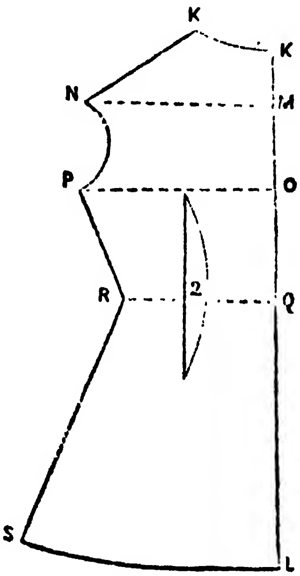


Fig 6.

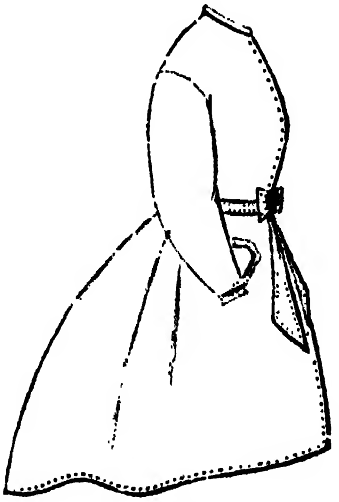


Fig. 16.

For a loose paletôt, cut the back like Fig. 1, taking the half to the dotted line from A to E for the pattern. The measurement is from A to E, the length of the back, nineteen inches. This is subdivided from A to B two inches; from B to C, five and a half inches; from C to D, seven inches; from D to E, four inches; from B to F, ten inches; from H to D, fourteen inches.

Fig. 2, the pattern for the fronts, measures the length from A to E, seventeen inches. This is subdivided from A to B one inch; from A to C, five inches. From H to I measures seven and a half inches; B to G, five inches; C to H, ten and a half inches; D to I, seventeen inches; from F to G, five inches.

The sleeve (Fig. 3) measures sixteen inches from A to B; eleven from C to D; five from D to B; and seven from C to A. Cut the two pieces of each sleeve different at the top, the under one by the lower curve from C to A, the upper half by the upper curve.

Make up the paletôt as already described in previous numbers; if lined, the turnings-in face each other round the edge, as well as in the side seams. If not lined, and the material is the same both sides, turn up about half an inch on the right side and tack it down with a raw edge. Run the trimming over it, so as to cover the raw edge. Withdraw the tacking-thread. When there is such a difference between the right and wrong side of a fabric as to render this impossible, make a very narrow hem, in the usual way, on the wrong side, all round the edge. Now hem the seams of silk and cloth. Fancy materials unlined must be made with mantua-makers' seams at the sides. Silk and cloth must be stitched.

A *demi-adjuste* mantle for a girl can be made of the following dimensions, which are only suited for a very small child of seven or eight years of age; but can easily be increased, if desired, by allowing an inch more each way.

Fig. 4, the back, measures in length from A to B twenty-six inches; from C to D, across the shoulders, six inches; from E to F, below the arms, four and a half inches; from I to J, across the skirt, nine and a half inches; from I to B, the slope of the skirt lengthways, two inches. The shoulder measures from A to D five and a quarter inches. The side seam, from F to H, six inches; from H to J, thirteen inches. Fig. 5, the side piece which is joined to the back, measures on the curve from I to V nineteen inches. On the side under the arms, from J to W, four inches; from W to S, eleven inches; from I to Y the width is two inches, and at the waist, from W to X, three and a half inches. The skirt from S to V measures six inches. Fig. 6, the front, is twenty-seven inches long from K to L. Across the chest, from M to N, six inches. Below the arms, from O to P, seven and a half inches. At the waist, from Q to R, seven and a half inches. The

skirt, from L to S, fourteen inches. The shoulder, from K to N, measures five and a half inches. The side seam from P to R, four inches. The skirt side seam, from R to S, eleven inches. A tight mantle can easily be made from the same pattern, by taking in a seam, as shown in Fig. 6, marked 2. It slopes from a point at the dotted line between O and P to the waist at the line Q and R, where it is broader, and again fined off to a point in the skirt. This must be taken in as usual, as the figure of the child allows; how much it will allow may be seen by noticing that no wrinkles nor superfluous fulness is given about the chest. The best way is to make the fold by pinning it on the child on the right side, and fastening the left to it. If the mantle does not fit close after this seam is made, take it in till it does fit at the side seam between P to R (Fig. 6), and the side piece X to W (Fig. 5). The skirt should also be taken in sufficiently and sit easily, but not too full over the child's skirt, which can only be effected by pinning it on the child, as individual measures differ. The mantle we have before us is composed of black gros-grain silk. The sleeve is fourteen inches on the outside, ten on the inside, nine inches across the top, and four across the cuff; it is cut like Fig. 3. The neck is set into a narrow upright band.

A very pretty, tight-fitting paletót can be made from diagrams 7, 8, 9, 10, 11, 12, 13, 14, and 15, which is represented complete by Fig. 16. Figs. 7, 8, and 9 represent the back. Fig. 7 is cut in two pieces, and joined by stitching from A to B. The back, from A to B, is eleven inches long; the width across the back, from C to D, is nine inches; and from E to F is not quite four and a half; B to G, the waist, is one and three-quarter inches; C to D, the shoulder, is five and a half inches; F to G, the curve at the side, is six inches. The skirt of the back (Fig. 8) is made separately in two pieces, joined at the seam from I to J, which is fourteen and a half inches long; from K to L it is thirteen inches long; from L to J, dotted line, nineteen and a half inches; from I to K, six inches wide. Fig. 9 shows how the back is joined by stitching, and then set in two pleats at the waist, which bring it to the same width in the waist of the body (Fig. 7) to which it is firmly stitched at the seam overcast. The side seams of the back (Fig. 10) can then be joined, one each side. These measure from M to Q, six inches, Q to N, thirteen inches; from O to P, fifteen inches; from M to O, one and three-quarter inches; from Q to R, three and a half inches; from N to P, eleven inches. The front piece (Fig. 11) measures twenty-seven inches from A to B; from H to J, seven and a half; from C to D, six inches; from E to F, the waist, four and a quarter inches; from G to B, the skirt, six and a half inches. The side piece of the front (Fig. 12) measures from K to L, the front seam, seventeen inches; from M to N, the side seam, fifteen and a half inches. In width from M to K, two inches; from O to P, the waist, three inches; from N to L, measured straight across, the skirt is nine inches.

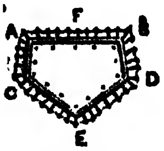


Fig. 13.

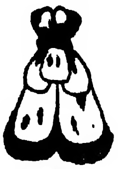


Fig. 15.

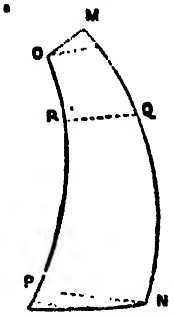


Fig. 10.

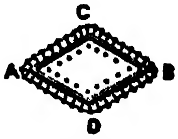


Fig. 14.

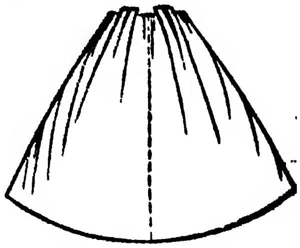


Fig. 9.

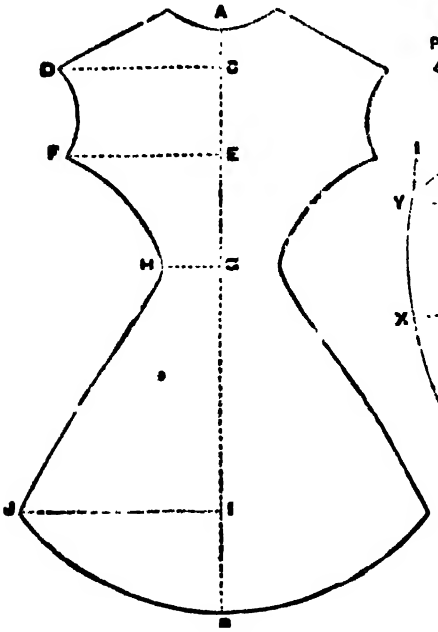


Fig. 4.

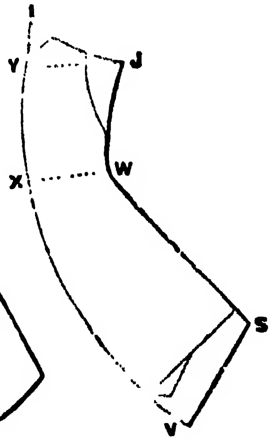


Fig. 5.

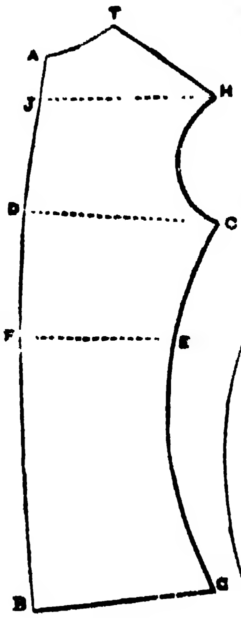


Fig. 11.

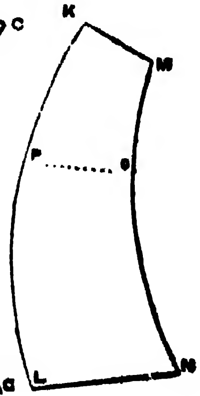


Fig. 12.

No allowance is made for turnings. The side seams, and the seams which join the side pieces of both back and front will each take half an inch in width, as they are all united by mantua-makers' seams, the join down the back only being simply stitched together. The shoulders have mantua-makers' seams, for which allowance must be made.

The sleeves are cut, as described, in the *demi-adjuste* form (Fig. 3), stitched together and overcast, and stitched into the armholes and overcast. Cut the pieces for the

pockets like Fig. 13. These measure from A to B, four inches; from C to D, four and a half; from E to F, three inches; from C to E, and E to D, each side, three inches; from A to C, and B to D, each side, one inch. Allow for turnings. Cut an ornament to place at the waist behind, like Fig. 14, a diamond four and a half inches long from A to B, and three inches wide from C to D. Each side, such as A to C, measures three inches. Two sash ends, Fig 15, four inches wide and twenty-six inches long are joined under the diamond each side, the sash pleated an inch and a half wide, with one pleat turned downwards to make it a waistband. It is tied in front. Two bands eleven inches long and a quarter of an inch wide are run together at the top, to make a neck-band to enclose the throat of the jacket. No allowance is given for turnings.

The jacket before us is of black gros-grain silk, piped with white gros-grain down each side of the front, and all round the lower edge of the skirts, the piping afterwards run down on the wrong side about a quarter of an inch wide, and a chalk bead taken up on the right side on every fifth stitch of neat running. This makes a pretty border or trimming of white beads to the jacket. The sash is also piped round, and beads sewn on it. The pockets and the diamond at the back are piped round and beaded in the same way, and afterwards a silk quilling one inch wide, pinked small both sides, is set on all round behind the piping, not taking the stitches through. The cuffs are piped, beads sewn on, and a quilling added in the same way. This jacket is very pretty made in muslin, edged with embroidered work, or in a fancy material piped, beaded, and trimmed with a quilling of any well-constructed colour in the way already described; or in a fancy stuff, instead of beads, ribbon, or passementerie, is effectual.

THE POTATO.—I.

THE introduction of this valuable vegetable into the system of British husbandry by Sir Walter Raleigh, dates from the year 1586. It is mentioned by Shakespeare, and other writers of the time; and Taylor, the "water poet," in his poem printed in 1621, has this line:—

"*Spanish potatoes* are accounted dainty."

Possibly we may have imported them from Spain at that period, as a finer sort than those grown here. We find in an old cookery book, of as early a date as 1596, the *potator* as an ingredient of "a tarte."

The story of its introduction is as follows:—Queen Elizabeth, in 1584, granted a patent "for discovering and planting new countries not possessed by Christians," when Raleigh equipped some ships, and set sail for America. Thomas Herriott, who accompanied the expedition, sent home the description of a plant called *openawk* by the natives of Virginia. He describes it as "a kinde of root of round form, some of the bigness of wallnuts, some farre greater, growing many together, one with the other, in ropes, as if they were fastened by a string. Being boyled," he says, "they are verie good meate." Gerard in his "Herbal," mentions that he had the plant from Virginia; that he had grown seedlings of it in 1590, and that it grew admirably in his garden (possibly in Holborn, where he resided). He gave it the name of *Solanum tuberosum*, afterwards adopted by Linnæus, and which it still retains. Gerard supplied the modes of dressing it for the table, and recommended it as the basis of delicate conserves, and restorative sweetmeats; and he assures us its flatulent effects were corrected by eating the roots sopped in wine, and boiled with prunes. Sir Robert Southwood, president of the Royal Society, claimed the honour for his grandfather of having first cultivated this plant in Ireland, where it has so long been the principal food of the peasantry. Sir Robert stated that his ancestor obtained roots of the potato from Sir Walter Raleigh. The story of Sir Walter's gardener at Youghal, on going to taste the apples of the fine American fruit, being so sadly mortified at not finding them, and of his subsequent discovery of the tubers when his master desired him to throw out the weeds, is probably authentic.

The native soil of the stock plant is Chili, where, says Molina, it is called *maglia*. According to Humboldt, it was transported thence to Peru, Quito, New Granada, and the whole Cordilleras, from 4° S., to 6° N. He adds that it was unknown in Mexico previously to the Spanish conquests. In that case, its presence in Virginia was a comparatively recent fact at the period of Raleigh's visit there. The same observation applies to Nicaragua. Mr. Charles Darwin, in 1835, found growing among the Chonos Islands (in latitude 45° 30′), in great abundance, a wild potato, which, he says, more closely resembles the cultivated kind than the *maglia*; and—notwithstanding the opinion of Molina and the great German—Mr. Darwin concludes that the Chonos Archipelago is its true birthplace. It has been asked, What is really the native country of the potato, and where does it exist without cultivation at the present day? To which an American replies, "The potato, whence our domestic stock is derived, is an inhabitant of South America, and is, at this time, thriving without human care or protection in Chili; the specimens are small, some not larger than nutmegs."

The potato, it seems, had been known on the Continent for some considerable time. The name which we now apply to it seems to be taken from the Spanish or Portuguese softened into *batata*, hence the English *potato*. It was cultivated in Ireland long before its introduction into Lancashire, which was owing, it is said, to a shipwreck at North Meols, at the mouth of the Ribble, where the mode of propagation still maintains pre-eminence, and whence the culture of this important plant has gradually spread through every portion of Great Britain. Though tolerably common, potatoes were—in the time of James I.—considered as a great delicacy, and are noticed among other articles to be provided for the queen's household; the price was two shillings per pound. A strange objection to potatoes was urged by the Puritans, who denied the lawfulness of eating them, because they are not mentioned in the Bible; but whether we view this vegetable with reference to its adaptation to every soil and to almost every climate, or as a great source of food and nutritive properties, it must be ranked among the best gifts of Providence.

In France, the progress of the potato was slow, and its history affords a strong illustration of the influence of authority. For more than two centuries the use of this invaluable plant was vehemently opposed. At last Louis XV. wore a bunch of its flowers in the midst of his courtiers, and the consumption of the root became universal in France. It was not, however, until after a considerable time that it became palatable, productive, and farinaceous, or admitted into the course of field husbandry. It was limited to the garden for at least a century and a half after it was planted at Youghal, and it was not until 1732 cultivated as a field crop in Scotland. In 1725—6, the few potato-plants then existing in gardens about Edinburgh were left in the same spot of ground from year to year, as recommended by John Evelyn; a few tubers were, perhaps, removed for use in the autumn, and the parent plants were all covered with litter to save them from the winter's frost. Among Evelyn's MSS., date 1690, we found a memorandum, in which he calls potatoes, Irish, "tasting like an old bean or roasted chestnut, not very pleasant till use have accustomed, yet of good nourishment and excellent use for relief of poor, yea, and of one's own household when there are many servants, in a dear year."

The potato was introduced into Ireland about the middle of the seventeenth century, and it was universally adopted,

especially in Ulster, that province so largely peopled by the Scotch. Within the memory of persons still living, an intelligent Scotch labourer learnt the mode of growing potatoes and of cooking them, and made a little fortune by fees he received for teaching persons how to grow and to dress the vegetable. Before his day, the Scotch rejected it as a nasty, wet, unpalatable, and useless article of food.

A living horticulturist has well observed:—"There is perhaps no vegetable product, not even excepting the cerealia, or the most useful of the palm tribe, which has proved of such essential importance, or which is likely still to have such an influence on the population of the temperate regions as the potato. One could scarcely have believed that, in little more than two centuries, a small, and almost neglected tuber, transported from the newly discovered regions of Mexico—where it occupied but a very insignificant space, and was but sparingly, if at all, used as human food—should have been multiplied so as to form the principal subsistence of thousands of human beings for succeeding generations. The potato offers a remarkable instance of the powers of development possessed by a plant. A single species, introduced nearly 300 years ago, affording at first small insignificant yellow tubers, has been so stimulated by cultivation that we can now boast of almost innumerable varieties, of every character of excellence, and adapted to the peculiarities of every district. The constitutional character of some has been so altered that their fruit is matured months before others. Some take a kidney shape, some are round, some oblong; some produce a white mealy flesh, some are yellow and waxy, some are white, others pink and yellowish. During the worst period of the disease which has so seriously affected potatoes, I grew some imported specimens from Peru, wishing to begin the culture of the potato anew from a pure stock; but my experiment did not answer. The Peruvian potatoes were diseased as badly as our own sorts, and their character was precisely similar to the parent stock, which Sir Walter Raleigh gave to his gardener upwards of two centuries ago. The means employed to produce the result we now enjoy in this case have been high culture, regeneration by seed, and hybridisation."

Mr. T. Andrew Knight, president of the Horticultural Society, was convinced by experiments that the potato plant, under proper management, is capable of causing to be brought to market a much greater weight of vegetable food, from any given extent of ground, than any other plant which we possess. About a century ago the potato was unknown to the peasantry of Herefordshire, and agues were exceedingly prevalent among them. The potato was then cultivated only in small quantities, in the gardens of gentlemen, but it was not thought to afford wholesome nutriment, and was supposed by many to possess deleterious qualities. The prejudices of all parties, however, disappeared so rapidly that, within ten years, the potato had almost driven the cabbage from the gardens of the cottagers. Within the same period ague, the previously prevalent disease of the county, disappeared, thus showing that the introduction of the potato was not injurious to the health of the peasantry. Mr. Knight does not mean to say that potatoes alone are proper food for any human being, but he feels confident that four ounces of meat, with as large a quantity of good potatoes as would wholly take away the sensation of hunger, would afford, during twenty-four hours, more efficient nourishment than could be derived from bread of any quantity, and might be obtained at much less expense.

Potato Flour.—The farina of the potato, properly granulated and dried, is sold in our shops as tapioca, to which it bears the closest resemblance, both in appearance and essential properties. For confectionery, the flour is so delicately white, and it is so digestible and nutritious, that it ought to be in more general use among the children of the poor, especially in the winter season, when they so rarely enjoy the luxury of milk; and the cost is not more than a sixth or seventh of the price of tapioca, if it be made at home. Few housewives are ignorant of the method of obtaining it by the use of a common hand grater; but, for large supplies, it is also made by machinery.

Such is the patented invention of Grellatt, by which a paste of potatoes is prepared by boiling, skimming, and drying; or the pulp is boiled, dried, and reduced to meal in a chamber of hot air. The meal passes through a mill of two vertical stones, a bolting-cloth, and hollow metal columns, and thence by an endless screw, in a double cylinder of zinc, the flour being thus raised to the drying chamber.

Mealy potatoes are more nutritious than *waxy*, because the former contain the greatest quantity of starch. Thus, a microscope shows a potato to be almost entirely composed of cells, which are sometimes filled, and sometimes contain clusters of beautiful little oval grains. Now, these little grains remain unchanged in cold water, but when the water is heated to about the degree that melts wax, they dissolve in it, the whole becoming a jelly, and occupying a larger space than it did when in the form of grains. When a potato is boiled, each of the cells becomes full of jelly, and if there be not a great quantity of starch in the cells, it will not burst, but if the number of grains, or their size, be very great, the potato is broken on all sides by the expansion of the jelly in the cells, and *mealiness* is produced.

To ensure *mealy* potatoes, peel them, and put them on the fire in boiling water; when nearly done, drain them, put on them a dry cloth, cover them closely, and set them near the fire for five minutes.

In time of frost the only precaution is to keep the potatoes in a perfectly dark place for some days after the thaw has commenced. In America, where they are sometimes frozen as hard as stones, they rot, if thawed in open day, but, if thawed in darkness, they lose very little of their natural colour and properties.

When ripe, the potato has an impervious coating of *cork*, through which water can scarcely pass, and by which, therefore, it is confined within for months together, and it is this cork layer which enables the potato to keep through the winter.

When brandy is manufactured from potatoes, there comes over along with it, in the first distillation, a quantity of third spirit, or alcohol, which is known as potato-spirit. When this is distilled with oil of vitriol and acetate of potash, it yields potato-ether, which, mixed with spirits of wine, acquires the odour and flavour of the *jargonelle pear*, employed by confectioners to flavour barley-sugar, and thus make pear-drops.

Various interesting experiments have been made for growing this root, but we must be content with giving the best modes of treatment. The following method in light soil and warm situations will amply repay the trouble: this plan is practised in Lancashire, Devonshire, and many parts of Ireland, and is termed the "lazy-bed" planting; it is performed as follows:—Mark out the ground, four feet and a half for the beds, and two feet for the alleys; then remove about four inches of the surface of the beds into the alleys, afterwards digging the beds; and if the soil is not in good heart, manure must be added under the potatoes if at all heavy, but if very light place it above them. By putting manure under early potatoes on strong soil, it acts as drainage. The sets, which should be good-sized potatoes of the Ash-leaved Kidney, Early Frame, Fox's Seedling, or any other dwarf-growing early kind, must then be planted about eight inches apart all over the surface, placing them carefully with their crown-eyes upwards. As the plants appear upon the surface, a little soil must be added to keep off frost.

The following potatoes are recommended; their order of succession being taken as a guide to their respective merits:—(1) Ash-leaved Kidney, very early, prolific, and fine flavoured; (2) Lapstone Kidney; (3) Flukes; (4) Holberry Kidney; (5) Broad-leaved, an excellent white, dry potato; (6) Lancashire Pink-eyed, a mealy, good-keeping kind, and very profitable.

HOUSEHOLD CHEMISTRY.—XI.

ON DISINFECTING SUBSTANCES, AND HOW TO USE THEM.

(*Continued from p.* 187.)

THE addition of a few drops of strong sulphuric acid (oil of vitriol) on the end of a stick or piece of glass rod to a small quantity of chlorate of potash and loaf-sugar, powdered and mixed together, is an agreeable way of destroying unpleasant odours; a disinfecting gas, a compound of chlorine with oxygen, being evolved. Care must be taken in using this means of disinfecting rooms that only a small quantity of the chlorate of potash and sugar are used; and also, that they are powdered separately, and afterwards mixed with the feather of a quill-pen on a sheet of white paper. If rubbed together in a mortar, the mixture of these substances would be found to explode. Care must also be taken, in employing the sulphuric acid, that none of that liquid is spilt, otherwise holes may be burnt in the clothes of the person using it, or the carpet and furniture of the room injured.

In all cases where chlorine is employed to purify the atmosphere of a sick-room while the patient is in it, great attention must be paid that too much of this gas be not suffered to escape into the apartment; for, although chlorine, when present in a small amount, produces a peculiar freshness of the air, and renders it more pleasant to respire, yet, when it is in excess, it produces cough and irritation of the lungs.

Perhaps the most convenient way of employing chlorine under these circumstances, is to keep ready some moist chloride of lime in a wide-mouthed, stoppered bottle. When the atmosphere of the room requires purifying, the stopper is withdrawn, and chlorine gas given out into the atmosphere; at the same time, any carbonic acid gas that may be present is absorbed by the lime. As soon as all unpleasant odours are destroyed, and the air of the sick-room is sufficiently purified, the stopper may be replaced, and the bottle retained in readiness for future use.

Condy's Patent Fluid—a valuable disinfectant for domestic use, and which may be employed with safety in sick-rooms—is a solution of the permanganate of potash. This fluid acts very rapidly on sulphuretted hydrogen or on any organic matter that may be present in the atmosphere, by supplying them with oxygen, and converting them into harmless compounds. When this solution is used, it should be poured into flat shallow glass or earthenware vessels, and exposed in the apartment the air of which we wish to purify. The fluid which, when first poured out, is of an intense crimson colour, after a certain time, the duration of which will depend on the impurity in the atmosphere, gradually deposits a dark precipitate of the oxide of manganese, and becomes colourless. When this happens, the fluid thus changed should be thrown away, and the vessels supplied with fresh. If preferred, Condy's patent fluid may be used for the purpose, largely diluted with water. Two kinds of Condy's fluid are manufactured, the cheapest being of a green colour. It is prepared expressly for large coarse operations, such as disinfecting sewers, cleansing drains, &c., one gallon of this fluid, when diluted with water, making two hundred gallons of disinfecting liquid. The other kind, known as Condy's patent fluid (crimson) is much stronger and purer than the preceding, and is therefore adapted for use in household purposes, and in dairies, farms, places where horses or cattle are kept, &c.; also for purifying the air in sick-rooms, hospitals, workshops, schools, and other places where the atmosphere becomes impure. For these purposes this fluid will bear diluting with from two to three hundred gallons of water before being used. It may be used for numerous other purposes. When cisterns and water-butts become foul, and coated with green confervoid growths, they may be readily cleansed by introducing a sufficient quantity of this fluid. It will then be found that as soon as the green matters come in contact with the fluid, they at once shrivel up and are destroyed, while the water is purified and rendered fit for drinking. For the same reason it is very useful for cleaning bottles, wine-casks, beer-barrels, pickling-tubs, dairy utensils, &c. When Condy's fluid is exposed in a newly-painted house, it will be found to counteract the unpleasant smell of the fresh paint. It also serves to remove odours from fustians, flannels, new boots and shoes, &c.

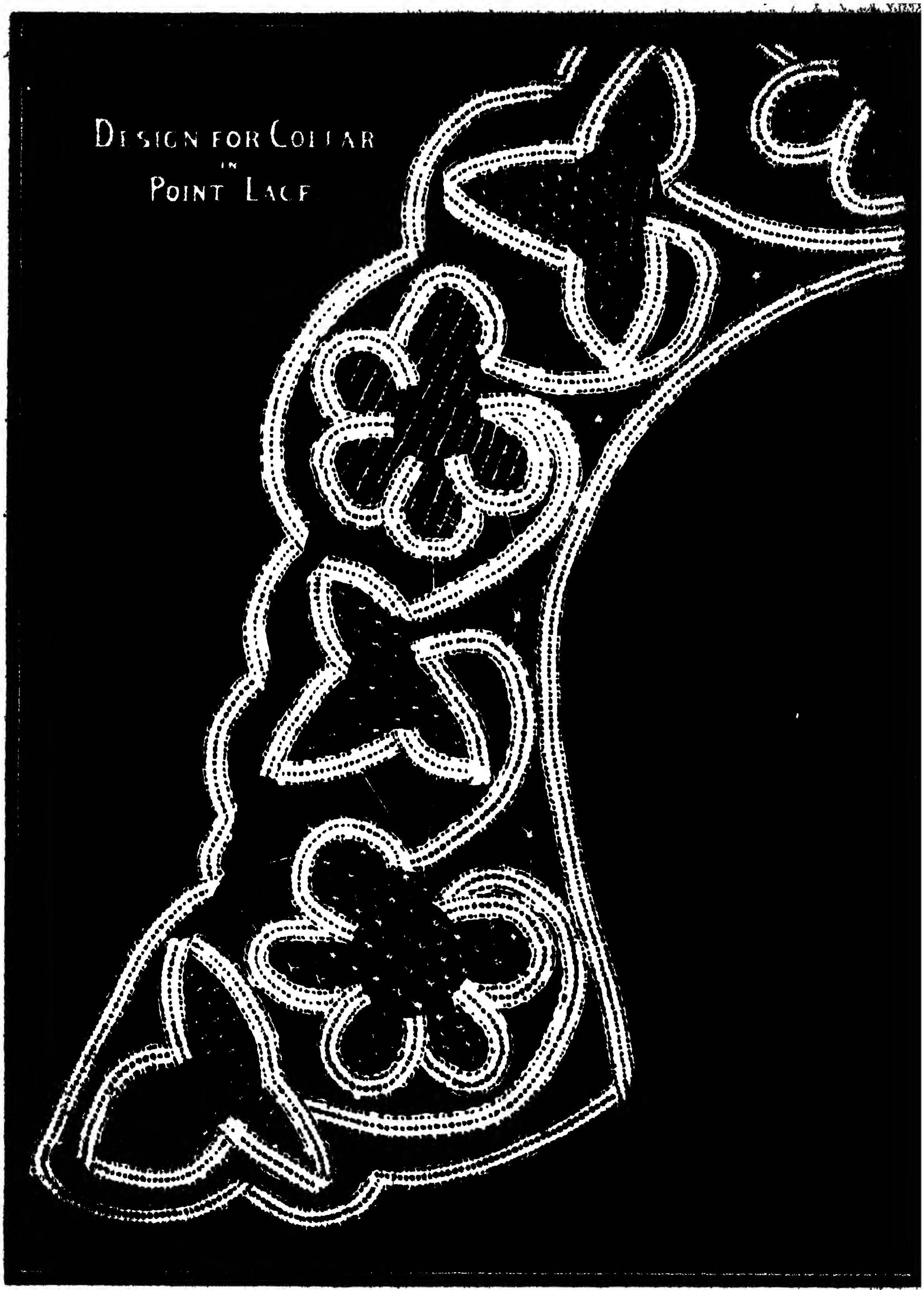
Powdered charcoal, from its valuable disinfecting properties, may also, with advantage, be exposed to the atmosphere of a sick-room. It acts by absorbing into its pores all offensive and poisonous gases that may be present in the air. For this purpose the powdered charcoal should be newly made, and placed in a thin layer on wooden trays about the apartment. The charcoal employed should be perfectly dry; for if moist, it will not act until all the water it contains is perfectly saturated with air. As soon as the pores of the charcoal have absorbed all the gas of which it is capable, it ceases to act as a disinfectant, and should be renewed, and fresh charcoal put in its place. When the charcoal powder which has thus lost its power of absorption is exposed to heat, it gives off the poisonous gases it has absorbed, and again becomes fit for use. Clothes having an offensive smell will lose it after being shut up for a short time in a trunk with powdered charcoal.

The disinfecting power of charcoal is such, that the most impure air may be rendered fresh by being caused to pass through this substance, enclosed between two layers of wire gauze. Respirators for covering the mouth, when entering infected places, have been constructed on the same principle.

Phrenic, or carbolic acid, is an excellent disinfecting agent, but owing to its peculiar smell, which resembles wood smoke, it is chiefly employed to keep the atmosphere of stables, cow-houses, and other out-buildings in a healthy condition.

JET.

THIS substance is a variety of coal used in England for the manufacture of mourning jewellery and other ornaments; it is much blacker, tougher, and harder than the ordinary cannel coal, and has a considerable lustre when polished. Its hardness is 1·5, and specific gravity 1·3, and it has a conchoidal fracture. Jet is found in detached pieces in clay on the coast of Yorkshire, near Whitby, and on the Baltic coast (where it is called black amber), in the forest of Ardennes, and in the Pyrenees. Great quantities of the manufactured jet are sold in Spain and Turkey. This substance is the *gagates* known to Pliny, Theophrastus, and other ancient authors, and took its name from the river Gagus, in Syria, where in ancient times it was found; the English name also is a corruption from the same word. In manufacturing this material it requires to be frequently moistened with water, for if it be allowed to get hot by the friction of the cutting or polishing wheel, it flies into pieces. It is polished with tripoli and oil; the final polish being given by the hand, with dry tripoli powder.

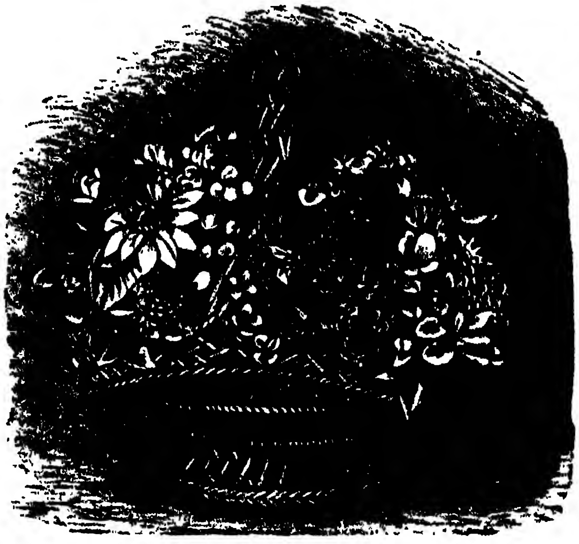

DESIGN FOR COLLAR
IN
POINT LACE

POINT LACE WORK.—XV.

DESIGN FOR A POINT LACE COLLAR.

(See Frontispiece to this Volume.)

TRACE the design in transparent cloth, completing the whole of the flower at the back to form the centre of the collar. Reverse the transparent cloth over the coloured design, and trace the other half of the collar, so as to form a whole of the two halves. Tack on the braid in the usual manner. The flower in the centre of the back is filled in with *point Turque*, which is worked thus:—Make a row of open loops, carry the thread straight back level with the points of the loops. Next row, make another series of loops, taking a tight button-hole stitch through the point of every loop in the row before, and *over* the straight thread. Thus all are bound together firmly. The leaf each side of this flower is filled up with *point de Grecque.* Three tight button-hole stitches and a deep open loop alternately is the way to work this. For the second row, the button-hole stitches are taken in the loops of last row. The next flower (in the centre of the side) is worked in double Spanish point. The corner flower is filled up with *point Turque.* The leaves are all worked alike. Fine linen lace braid, with or without a hole in the centre, should be used for this work. It will cost about twopence per yard. Some persons prefer to use cotton braid and inferior thread, as economy in working point lace. But it is a mistake; cotton braid seldom washes well, and used in conjunction with a linen thread, it is almost sure to shrink. But if carefully and neatly done, with fine materials, point lace articles are beautiful and durable.



BASKET OF SHELL FLOWERS.—*Page 250.*

Having filled the flowers and leaves, unite the various parts of the braid with button-hole bars, work each a little over half the length. Slip the needle back a few stitches, and back again; this prevents the bar twisting; or as a variety, a little loop may be made where this stitch is taken, and filled with button-hole loops. Edge the collar all round with real lace pearl edging, worth twopence or twopence halfpenny per yard. This gives great finish and neatness to the appearance of the work.

THE TOILETTE.—XIX.

THE TEETH (*continued from p. 60*).

Disorders of the Teeth and Gums.—In the young it very often happens that the gums become disordered and unhealthy, and we shall therefore make a few remarks upon the cause, and the mode of remedying the simpler affections of the gums. When the teeth are coming through, the gums become inflamed (we have already spoken of this under the head of "Teething," and must refer the reader to what we have said under that head). Then the gum may ulcerate; this generally arises from debility, either due to constitutional causes or to improper food. The gums are perhaps pale, not inflamed, but bleed readily, and then ulcerate. Here it is necessary to give steel wine and cod-liver oil or other tonics internally, and to use some of the more simple astringent washes, which we described in a former paper. At other times the gums inflame, and then ulcerate; and there are three particular forms of this disease, which is called, in strict medical language, *stomatitis.* The first form affects the little follicles or glands of the mouth, and on examining the child you find a little fever or fretfulness, the mouth is hot and dry, and the gums and middle of the mouth are covered over with little bladders, which burst, and leave little ulcers; fresh bladders appear, and leave new ulcers. The stomach is generally out of order, and a little rhubarb and soda (two or three grains of each) should be given every night, and a little fluid magnesia in the morning if no improvement is observable, whilst the mouth should be repeatedly washed out with the following lotion. It is very pleasant, and no harm is done if it be swallowed:—Chlorate of potash, one drachm; honey, half an ounce; hyposulphite of soda, one scruple; water to make up four ounces. Give a teaspoonful or two several times a day to the child, and let the mouth be well washed out. In the second variety, the ulceration is more decided, and begins just at the edge of the gum, about the teeth, whilst it spreads rapidly. The gums are swollen, discoloured, and tender. In these cases the medical man should be consulted, because the child's health wants special attention; as also in the third form, which makes its appearance in the very young child, who has been prostrated by some serious illness, as a gangrenous patch commencing inside the cheek, and rapidly spreading. Very active measures indeed are frequently needed to cure this disease, and to save life in many cases.

Thrush.—This consists, as every one knows, of small white raised patches or specks scattered about over the tongue and gums. In the child this affection is of no serious import, but if it occur in the adult at the end of a long illness, it signifies that the powers of the system are very much reduced. The cause is the development, amongst the cells of the covering membrane of the mucous surface, of a little fungus or mould. The mucous membrane is irritated, and the irritation may spread into the intestinal canal and produce bowel disturbance. If the patches are very numerous, they may be so closely packed together that they join, and so a white, wet, leathery-looking membrane is produced over the tongue and gums. The treatment is simple: mild tonics internally, and astringents locally, are all that is required. The best tonic, say for a child of a year and a half to two years old, is the following:—

Chlorate of potash	20 grains.
Tincture of bark	30 drops.
Simple syrup	2 drachms.
Water	1 ounce.

A teaspoonful twice a day.

The mouth should be repeatedly painted over, and in the case of a young child who takes the breast after each time of nursing, with the following:—

Borax	100 grains.
Glycerine	1 ounce

Mix together.

If the thrush is very bad, the following is preferable at the outset of the case :—

Hyposulphite of soda...	60 grains.
Water	1 ounce.

To be used twice or thrice a day, and to be painted over the part affected with a camel-hair.

Gumboil.—This consists of swelling and inflammation at that part of the gum which surrounds the fang of the tooth, and the formation of an abscess around the latter. It may arise from disease of the tooth itself, or from inflammation of the covering of the tooth, called the periosteum, from cold or other causes, or from the irritation induced by old and dead stumps in the jaw. The symptoms are at first pain, and this is very severe and acute if the pulp of the tooth is inflamed; but if it be the covering of the tooth only that is involved, it is of a dull and aching character, and relieved by pressing upon the tooth. The tooth becomes somewhat loosened in its socket. Presently all these symptoms increase, and the gum itself becomes red and tender and swollen, and a peculiar throbbing sensation is felt in the gum. If the disease progresses, matter forms about the tooth and distends the gum at one part, forming a swelling, to which the term gumboil is applied. The swelling may burst and discharge matter suddenly, or matter may ooze away by little and little from around the neck of the tooth, or the gumboil may require to be opened to give exit to the matter. When a gumboil is forming, what shall we do? If it be due to a really bad and decayed tooth, the only thing to be done is to extract the tooth. Where there is reason to think the tooth sound, and where the swelling and pain are not excessive, we may often do much to prevent matters coming to an extremity. A leech may be applied to the gum where it is tender, and the mouth should be bathed with warm water for a long time. The person afflicted should sit with a jug of hot water by his or her side, and take a mouthful every now and then, hold it in the mouth, and then take a fresh mouthful when the water in the mouth begins to feel cool. A very good plan is to soak a piece of a crust of bread in hot water, and put it betwixt the cheek and the tooth, keeping it there some little time or changing it when it becomes uncomfortable. These warm applications may so far soothe that the swelling and pain go, or if matter is destined to be formed, they hasten its formation; and then, when the matter, as surgeons say, "points," when the gum feels distended, soft, and looks thinned, as if fluid were just beneath it, an opening should be made at once. The best way is to pass the lancet between the tooth and the gum, just as the dentist does before extracting a tooth. The matter finds a better exit by this means than if the lancet were made to open the gum at any other part. As the abscess empties itself a simple astringent wash (see receipts already given) may be used. Great care must be taken for awhile not to catch any cold in the tooth.

Bleeding from the Gums.—A few observations on this subject may be of service to the readers of the HOUSEHOLD GUIDE. The causes that lead to sponginess of the gums are such as debilitate the system. If the body is not properly nourished, the gums will share in the general deficiency of nutrition, and a soft, pale, and so-called spongy state of the gums is one result. Spongy gums are also the result of taking mercury in too great quantity. Now, spongy gums usually bleed on being cleansed or rubbed in any way; the act of sucking, also, is followed by more or less bleeding, and it is rather the bleeding that is taken notice of than the sponginess, and we shall therefore speak of sponginess of the gums in connection with bleeding gums. Now, there are three chief conditions under which bleeding from the gums occurs to such an extent as to require special treatment. The first is scurvy, and its allied states; second, after lancing the gums; and, third, after tooth extraction. In the minor cases, which we have not included under the above head, and which are explained by the general weakness of the person in whom the hæmorrhage occurs, all that is needed is the use of an astringent tonic mouth-wash, and receipts have already been given in a former article for such washes. When the bleeding occurs in those the subject of scurvy, the gums are always spongy, there is great languor and weakness, and the gums are ready at any moment to give out blood; and this tendency to effusion of blood is seen in other organs and parts of the body—for instance, in the skin, giving rise to the formation of dark spots and patches. Scurvy arises from want of a sufficiency of fresh vegetable food, and it occurs mostly in sailors who have been on a long voyage, and have had little fresh food. The treatment is clear—tonics, fresh vegetable diet, and the use to the gums of some of the astringent lotions already given. Now as to bleeding after lancing the gums. It is very seldom that this gives rise to any anxiety; occasionally, in what are termed "bleeders," those who are said to have the "hæmorrhagic diathesis," the bleeding goes on and on, and is stopped with difficulty. Of course, when the bleeding does not stop soon after the gums are lanced, and especially in a weakly child, it should not be allowed to go on unchecked. It will be advisable to have recourse to simple remedies. A little alum placed upon the gum may be at first tried; perhaps it is as good as anything; cold water is also useful; but if the alum do not effect the arrest of the hæmorrhage, a small piece of lint may be wetted with tincture of steel, which can be obtained at any chemist's, and freely applied to the bleeding gum. If this do not succeed, send for the doctor at once—do not trifle. We desire it to be understood that we do not call that bleeding excessive which continues for a quarter of an hour, or even more, but where the bleeding lasts for an hour. or stops and then returns with a free flow. Lastly, we have to give some hints how to proceed in those cases in which violent or continuous bleedings follow the extraction of a tooth. It is not often that this is a serious matter, but in "bleeders" it may become so. After the extraction of a tooth, which of course we do not describe, the patient operated upon should go home and bathe the mouth with a little warm water, or, if pain continue, a little decoction of poppyheads. The bleeding generally ceases in ten minutes or so after the tooth has been extracted. Occasionally it may go on for a longer time—an hour or so; but if it do not increase, or especially if it gradually lessens in amount, no trouble need be taken about it. But at the end of an hour, if the bleeding still goes on, measures should be taken to check it. The first thing to be done is to use cold water very freely, and if this do not succeed ice may be substituted, little pieces being put into the mouth from time to time. Mr. Hulme observes that where the patient cannot obtain ice, he or she should wash out the mouth with cold brandy and water, and afterwards a piece of cotton wool soaked in brandy should be pressed into the socket whence the tooth has been removed, and the individual should keep quite quiet and recumbent. So long as the bleeding continues the patient should not go to sleep, as he may wake up with his mouth unknowingly half filled with blood. If still the bleeding goes on, and no dentist can be got at readily, the following plan must be at once adopted :—The wound must be cleared from clots of blood, then a piece of lint in the form of a narrow strip should be dipped in some "perchloride of iron," easily got at the chemist's, and pressed firmly, bit by bit, into the socket, so as to form a complete plug, and then the lint may be piled up, so that when the teeth close together the patient can bite upon the lint with the opposing teeth, and so press firmly

upon the plug. Sometimes a piece of cork may be put over the lint and the jaws closed upon it, so as to keep up pressure. This plugging should be left till a doctor or dentist arrives. If no perchloride of iron can be got at, strong alum solution, or spirits of some kind, may be used instead.

DINNER-PARTIES.—I.

ENGLISH society has been termed a pre-eminently "dinner-giving society." And certain it is that it is especially the custom in England for friends to cement their intimacy by partaking of the social meal at each others' houses.

Despite of being so generally practised, the art of dinner-giving, in this country, is far from having attained the degree of perfection to be expected from the number and wealth of its votaries. The *millionaire* too often lacks acquaintances of congenial tastes, and is compelled to fall back on gorgeous profusion to bestow lustre on his table. On the other hand, a person of more slender means is liable to fall into the error of supposing that his friends do not care to dine at his table, unless he imitates the surroundings of the wealthier classes. It occurs to comparatively few persons that the chief charm of a dinner-party lies in ease of manner on the part of the host and hostess, together with all the arrangements of the entertainment being in accordance with the income and the natural mode of living of the entertainer.

The very circumstance of friends being assembled by invitation should guarantee that especial care will be taken to provide for completeness in every detail connected with the repast; but beyond this effort extraordinary expenses and excessive exertions need not be made. It is not needful that a host should for a few hours appear richer and more refined in his mode of living than he really is. Such attempts deceive no one, and can only have for result diminution of self-respect on the part of the pretender.

That a great many persons aim at giving set dinners, without particularly caring for the comfort of their guests, is a melancholy fact often thrust upon one's observation in going through life. Having a sort of notion that dinners are a stepping-stone to society, some people blindly rush into the act, without having taken into consideration the conditions under which a successful dinner can alone be given. It is not the mere fact of feeding acquaintances that secures their good-will. The food must be well chosen, well cooked, well served, and the company must be well selected. When devoid of adequate means to carry these desiderata into effect, the better plan is to decline such undertakings altogether. Or, if the giving of a dinner be a necessity, notwithstanding an unhappy conviction on the part of the host of his inability to acquit himself creditably of the task, is there any reason that he should give the repast at his own home at all?

In no country in the civilised world is the art of dinner-giving so well understood as in France. Simplicity, ease, and plenty are as much the characteristics of French dinners as display, restraint, and profusion mark the average dinner-parties given in England. Broadly speaking, in no country are so many good dinners given in private houses on small means as in France; and nowhere than in England are so many bad dinners of the same class the result of comparatively boundless expenditure. The reason for our frequent failures lies in an Englishman persisting in receiving dinner company at home, without having proper means at hand to carry out his wishes. The Frenchman avoids this error, by only attempting that which daily practice convinces him he can depend upon being well performed by those about him.

The following directions will, it is hoped, be found useful in preventing some of the errors which commonly attend dinner-giving by inexperienced beginners:—

All invitations should be issued a week or ten days previously, in the joint names of the host and hostess.

As far as practicable the guests should be acquainted with each other, and likely to harmonise in general conversation. Crotchety people, and people that like to absorb too much attention, are as a rule to be guarded against.

An equal numbers of ladies and gentlemen should be invited.

Whatever the desired number of guests may be, the invitations should be limited by the size of the dining-room table. At least sixteen inches of room should be allotted to each individual. If the table be capable of extension, sufficient room should be left for the attendants to pass freely round when serving. Several changes of plates, knives, forks, and glasses, should be provided, over and above the number of guests invited.

In laying the cloth, the wants of the diners should be first considered, and lastly the decorations. This observation is noteworthy, as there is some danger lest the present taste for table decorations should trench unpleasantly on the comforts of the guests. Massive groups of fruit and flowers in the centre of a small table are quite out of place, as are likewise "corner" decorations. Whatever impedes the movements of the guests in helping themselves, if required to do so, is a drawback to enjoyment.

As a general rule, the decorations of a dinner-table should only be slightly raised, admitting of an uninterrupted view of each other by the assembled guests. Flowers in pots and growing vines are no longer in favour. They are considered fit only to decorate a sideboard or side table; and even in such places they may be found in the way, if the space be limited. Fresh flowers only should be used to decorate dinner-tables. Artificial flowers are not in good taste, and are never seen in private houses where refinement prevails. The taste displayed in decorating tables is never so commendable as when applied to some useful purpose. And now that it is the custom to place fruit on the table at the beginning of the repast, the effect produced by grouping fruit is a legitimate object of study. Nothing is more appropriate than a centre-piece composed of dessert fruit, leaving choice flowers to figure in small vases and specimen glasses, in different parts of the table, marking by their position the boundary of certain dishes, and breaking a line of plates and glasses.

A good supply of water-bottles, salt-cellars, and small cruet-stands should be placed within easy reach of the guests. The fashion of requiring diners to wait till such condiments are handed by servants is senseless, unless ample attendance of the best kind be provided. One of the best authorities on dinner-giving says:—"A chief maxim in dining with comfort is to have what you want where you want it. It is ruinous to have to wait for first one thing and then another, and to have the little additions brought when what they belong to is half or nearly finished." It requires one servant to every two guests, to dispense entirely with self-serving. At the same time, it is a mark of ill-manners for a guest to be constantly asking for things to be passed to him, or to reach them from any distance. Least of all must he, under any emergency, rise and help himself.

The table-cloth is now almost invariably left on the table for dessert. This plan saves a great deal of trouble, and on that account is to be commended. Whenever it is intended that the cloth shall remain for dessert, white damask slips, of the same pattern as the table-cloth, should be laid along the sides and at the ends of the table. The slips should be of a width to be easily removed without displacing any articles placed on the table for dessert. Table-napkins are, of course, indispensable. If the company expected is at all numerous, the name of each guest, plainly written on a card or

small sheet of note-paper, should be laid on the table-napkin that marks the visitor's place. When this arrangement is observed, very little guidance to their places is needed on the part of the hostess.

The question of lighting the table is very important, and should be studied beforehand. A dining-room chandelier seldom suffices to give sufficient light for a festive occasion, and requires to be supplemented by other means. Branched candelabra, containing wax candles, are the most suitable, and lamps are the least convenient. In the absence of candelabra, rather than place a large lamp on the table, where it is certain to interfere with the view of the guests, several candlesticks, judiciously placed among the ornaments and at the corners of the table, produce a more pleasing effect. Small, plain glass candlesticks, such as are sometimes used for lighting a pianoforte, are in good taste at an unpretending dinner, where glass and not silver is the principal feature in the service. The candle ornaments should either be of plain glass, to correspond with the candlesticks, or very small wreaths of artificial flowers may be used. Lamps are very useful for lighting the mantelpieces and sideboards of a dining-room, where they aid in producing a generally diffused light, so desirable at a dinner-party.

Different coloured wine-glasses, denoting the various kinds of wine to be served at a dinner, are much in use, but are by no means indispensable. Carried to excess, the contrast of showy colours is rather vulgar-looking than not, and is more suggestive of a railway refreshment-room than the quiet taste that should regulate such matters in a private house. The distinct shape of the wine-glasses should be sufficient to prevent confusion in their use. No one, for instance, would think of pouring sherry into a champagne glass, or *vice versâ*. Some people consider that tinted glass, green or red, is favourable to the enjoyment of certain light wines; but, as the aroma of the wine itself is the principal point to consider, the colour of the glass is of small moment. Scrupulous order in the arrangement of the table, and the perfect brilliancy which results from careful cleaning, are of far greater importance. The latter efforts cannot be dispensed with without marring the best endeavours to achieve success in laying a cloth. Plenty of knives, forks, and spoons should be within reach of the guests' hands, and an unlimited supply should be on the sideboard, to replace those removed. On special occasions it is better to put aside one's choice dinner-service, if limited in the requisite number of articles, and to hire ample quantities of plates, dishes, &c., of a uniform pattern, even although the hired service may be of a commoner description. Nothing so seriously retards the progress of a dinner as for the courses to have to be kept back whilst plates and dishes, already used, are being washed and sorted, to reappear at the table. It is not only bad management to suffer this delay, but bad economy, and frequently causes a failure in what would otherwise be a well-cooked and promptly-served repast. In some unpretending establishments the plan is adopted of having only two kinds of dinner-service — the common blue willow or other easily obtained and well-known pattern for daily use, and plain white china for special occasions, on the principle that plenty of each can be used and replaced at all times, at little cost and trouble.

Small decanters (pints) of sherry should be placed at intervals on the dinner-table, without stoppers. Decanter-stands are not necessary, and are only in the way. Wine-coolers are also out of date on a dinner-table. Vegetables are now never served except from the sideboard, at any except strictly family dinners. It saves a great deal of trouble to have vegetable-dishes with two or three compartments, each containing a different vegetable. Most people like plenty of vegetables, and when served singly, they are apt to be offered too late for enjoyment, if offered at all.

The subject of ordering and serving dinner at a party must be reserved for another article.

CELLAR MANAGEMENT.

II.

Casks and Bottles.—When wine has to be put into a new cask, it will be necessary that the latter should first undergo some preparation. The cask should first be well washed out with cold water; hot brine, of the strength of one pound of salt to sixty gallons water, should then be poured into it; it should be bunged up, well shaken and rolled round, and allowed to stand till cold; the brine should then be let out and some heated wine poured in, and the cask again well shaken. When a cask has been emptied, it should, for its proper preservation, and to prevent the contraction of any bad taste or smell, have a brimstone match burnt in it; it should then be quickly and tightly bunged up, and be laid aside in a cool but dry place. When a brimstone match is used, it should be hung by a crooked wire from the bung-hole, and allowed to burn as long as it will do so. It is always necessary to be careful that it does not fall into the cask. Before racking wines, sulphuring the cask in this manner is generally resorted to, as it tends to check any after tendency in the wine to fermentation. If, immediately on its introduction, the lighted match is extinguished, it is a sign that the cask is unsound, and unfit for use. When tainted or mouldy, casks should first be washed and well cleaned with lime and water; afterwards with very dilute sulphuric acid; and, lastly, with boiling water only.

For most descriptions of wine, new bottles are better than old, since they afford greater certainty of cleanliness; but for port, which deposits much sediment, old ones are to be preferred. New bottles, being perfectly smooth within, afford insufficient means of attachment for the lees or crust, which is consequently liable to rise and float; if, therefore, it is necessary to fill such with port, it is well first to clean and scratch them with fine gravel, to make the crust hold better. Bottles are most readily cleaned immediately after they have been emptied. Small gravel-stones are better than shot for cleaning bottles; for shot not unfrequently remain wedged in the bottom of the bottle, and being afterwards dissolved by the acid of the wine, render it poisonous. If bottles are found to have contracted a musty smell, they should be washed, fumigated with sulphur, and then washed again. Bottles should be cleaned at least twenty-four hours before they are filled, that they may have time to become thoroughly dry. Absolute cleanliness in bottles is essential.

Racking.—Wines are racked from one cask to another for two reasons. This process serves to clarify the wine, and also to check the tendency to fermentation, by leaving the greater proportion of the fermentive principle, or yeast, with the lees in the original cask. It is not usual to rack strong wines till they have stood for a year or eighteen months upon the lees, in order that a slow fermentation may go on; but light wines are racked towards the end of the February after they are made. The best time for racking is in dry, cold weather; since when the weather is damp and close, and southerly winds prevail, the wine is apt to be turbid. If wine is found to be fermenting, it is usual to rack it off as soon as practicable—the cask to which it is transferred being first sulphured as above described. For checking fermentation, a little wine, just sufficient to cover the bottom, is generally put into the cask before the match is burned. The action of the burning sulphur is to generate sulphurous acid gas, which destroys or neutralises the active fermentive principle of the wine. One sulphuring is generally

enough to stop fermentation; but if not, the operation can be repeated, and the wine again racked off. Sulphuring is the general practice, but some persons imagine that it communicates a peculiar taste to the wine. A tasteless substitute for it is sulphite of potash, which may be used in the proportion of one drachm to a pipe of wine. In racking, the wine should be exposed to the air as little as practicable, and the use of a syphon is to be preferred to drawing off by the ordinary tap or faucet. If either of the latter is used, the operation should be performed as quickly as possible.

Fining.—Wines cannot always be rendered perfectly clear by racking alone, and various substances are introduced for the purpose of clarifying them; isinglass, white of egg, serum of blood, starch, rice, or gum, will answer this end; those commonly used are isinglass for white wines, and whites of eggs for red; while strong wines, which are harsh from excess of tannin, are often best fined with a little sheep's or bullock's blood.

For fining white wine, isinglass should be dissolved in a small quantity of the wine made lukewarm, and this, when quite dissolved, should be strained through linen. More wine should then be mixed with it, and the whole well beaten up with a whisk of twigs. This mixture must be allowed to become cold, when it will form a jelly, which must be again beaten up with cold wine, and then poured into the cask.

For fining red, draw out a few quarts of wine, and beat up the whites of new-laid eggs in a part of it, in the proportion of a pint of wine and two eggs to every ten gallons to be fined. Pour this into the cask, and well stir up the whole with a stick; then pour in the remainder of the wine, and replace the bung.

The quantity of fining to be used must, however, to some extent depend upon the quality of the wine; in fining port, too much fining matter must not be used, or there will be danger of spoiling the colour, which an excess of albumen would carry to the bottom. Red wines may be bottled a week or ten days after clarifying, but sherries should stand for some weeks. Four millions and a half of eggs are said to be annually used in Paris for fining wine.

Bottling.—Wine should never be bottled till it is perfectly clear, and if, after fining, it is found, as will sometimes be the case, not to have become so, it is better again to rack it off, and to allow it three or four days' rest before putting it into the bottles. For bottling wines in large cellars, various ingenious appliances are in use, but these can scarcely be expected to be provided in ordinary private cellars. All that is really necessary is a shallow tub, to stand under the cask, and a bottling tap, which is provided with a long nozzle to convey the wine to the bottle. The bottle (which should have been rinsed out with a little wine, but not with brandy) should be placed under the tap in a sloping position—which will cause least disturbance and froth in the wine—and the wine allowed to flow in to within a little less than two inches of the top of the neck, so that a clear half inch of space may remain between the wine and the cork. For corking, various machines are used in the wine trade, but in private families all that is required is a "grip" for compressing the corks, and a wooden mallet with which to drive them into the bottles. The corks should be simply dipped in wine, but should not be soaked in it, as soaking causes them to swell before being put into the bottles, and subsequently to contract, and not therefore to remain, as they should do, perfectly tight. The corks should be so large as to be forced in with difficulty, and should be well driven down into the necks of the bottles. Good corking is absolutely essential to the proper preservation of wine in bottles, and it is a point in which amateur bottlers, especially of the female sex, are apt to fail; we believe that more home-made wines are spoilt through inattention in this respect, than from any other cause. As a point of true economy, cheap and inferior corks should never be bought. No corks should be used that are not round, well cut, sound, flexible, free from blackness, and perfectly new. Cork is the bark of a tree (the *Quercus suber*), common in the south of Europe, and more particularly in Spain. The bark is taken off in large sheets, and exposed to the action of fire to render it more compact and impervious, hence the blackness which we sometimes see on the sides of corks; these charred portions have lost their elasticity, and in the best corks are wholly cut away; any which exhibit it should be rejected.

If the corks are to be waxed—which is desirable with all those wines which do not, like champagne, require to be wired down—any portion of them which remains above the neck of the bottle should be cut off, and the whole of the top should be well covered with wax; this answers the double purpose of making the cork more completely air-tight, and of protecting it from the attacks of insects. Receipts for making good wax for this purpose will be found in a former volume of the HOUSEHOLD GUIDE (vol. ii., p. 29).

During bottling, the wine should be as little exposed as possible. The air must, of course, be admitted to the cask, or the wine would not flow; but on some parts of the Continent the following expedient is adopted to prevent the wine and air coming in contact:—a little olive oil is poured on the surface of the wine, and this forms a complete protection to it.

Removing Wines.—The removal of wines is frequently attended with danger, especially to the more delicate kinds, and these should not be attempted to be removed in either very cold or very hot weather. But this is not material with all wines, and some of the strong and hardy wines of the South are even better for heat or agitation, and madeira is considered to be improved by a voyage to the East or West Indies. Wines in bottle, which deposit much sediment or crust, are better decanted before removal, as the precipitation does not then mix with the liquid portion. Wine in the wood is also better if racked off before being moved.

Decanting.—All except sparkling wines ought to be decanted before they are drunk, and in order that the flavour may be fully evolved and developed, they should be decanted two or three hours before required for use. This operation is one which should be performed with much care; the sediment should not be disturbed, and the wine should not be made to froth in the decanter. Few persons possess a hand steady enough to decant wine with sufficient firmness, and to stop at the precise moment, without some mechanical assistance, and various simple appliances have been invented for the purpose. To prevent gurgling and disturbance in the wine, some persons also insert a curved glass tube into the bottle, to supply air while the wine is being poured, as well as a glass funnel with a curved bottom, to lead the wine quietly down the side of the decanter, instead of allowing it to plunge violently down into the centre.

Diseases of Wine.—Acidity is a form of disease to which strong wines are but little liable; but light and thin wines are more exposed to it. It results from fermentation being carried on to what is called the acetous stage, and from acetic acid being thus formed. We have above spoken of all the precautions by which such excessive fermentation should be guarded against; where it does, in spite of such precautions, occur, it cannot be stopped in its later stages, and the only plan is then to neutralise or destroy the acid formed. Lead was formerly used for this purpose, but it is now no longer employed, on account of its poisonous nature. Alkalies—such as soda or potash—may be used; but they give a disagreeable taste to the wine. Chalk or lime is better and safer, and

may always be employed; egg or oyster shells, used by some persons, are but different forms of chalk.

Pricked wine is that in which the acetous fermentation has merely begun, and this may be cured by checking the fermentation by fining, racking, and sulphuring, as described above; and the acidity may be removed by adding half an ounce of tartarised spirits of wine to each bottle. Wine which remains turbid is always in danger of this fermentation, and fineness is not merely a quality desirable to please the eye, but is essential to the safety of the wine.

Mustiness, which results from unsound casks or corks, cannot altogether be removed; but it can to some extent be diminished by exposing the wine affected to carbonic acid gas.

Ropiness is a disease to which white wines are more especially subject, and when it occurs a quantity of stringy matter is found floating in the wine. It is desirable to precipitate this substance with isinglass, and to rack the wine off; a little tannin will frequently help to precipitate the ropy matter.

The Length of Time necessary for Maturing various Wines.—To suppose that great age in wine necessarily implies great excellence by no means holds good: some kinds of wine as much demand to be drunk soon after they are made as others do to be kept for a great number of years. In all wines certain chemical changes have to take place before they are fit for drinking; all require more or less time to bring them to perfection; a longer or shorter time elapses while they remain in that state—and afterwards they all deteriorate with greater or less rapidity. The chemical changes necessary for the maturing of wine go on most rapidly in the cask, and the same process goes on afterwards in the bottles, but more slowly; wine will, therefore, keep longer in perfection in bottle than in the wood; but to the proper development of hardy wines bottling is by no means essential. According to Mulder, port and sherry are stronger and better flavoured if drunk at once from the cask.

As a rule, white wines are fit to be bottled and to be drunk earlier than red, and most of the French wines—as champagne and burgundy—are short-lived as compared with the stronger wines of the South. The more delicate burgundies are fit for bottling at the end of a year, and arrive at perfection in two. Champagnes generally should be bottled early, and will be in perfection in three years; but some of the best qualities of this wine will continue to improve for ten, or even for a greater number of years; the still champagnes last longer than the sparkling. Rhenish wine is long-lived, and demands much time in the wood; the best hock is said to take twenty years to reach maturity, and will keep for four times that period. Claret may be kept seven years in the cask, and will remain in perfection for a much longer space in bottle. Port, chiefly on account of the large quantity of brandy with which it is fortified, requires many years' keeping, and frequently before the brandy is thoroughly mellowed the wine loses its colour as well as its strength and true vinous characteristics, and becomes tawny. Ports vary much, and their fitness for bottling and drinking is best proved by trial. Port is an exceedingly hardy wine, and may be kept without injury in cellars immediately beneath the London streets—which would ruin the more delicate kinds of wine. Sherry, madeira, and similar dry wines of the South are also hardy and long-lived, and demand a warm temperature to bring them to perfection. As a general rule, strong and sweet wines should be kept for a long period, and thin and brisk wines should be drunk quickly.

General Remarks.—We believe that in the foregoing remarks we have embodied all the information most necessary for the proper management of the cellar, and it only remains for us to point out the necessity for general order and regularity. To this end, it is well that all bins and casks should be numbered, and that a book should be kept in which all the operations of the cellar may be entered. As a perfect safeguard against mistakes, a paper label, stuck in the hollow at the bottom of each bottle, is also a plan to be recommended.

SALT.

COMMON salt, that used for culinary purposes, in a pure state is a compound of 39·4 parts of the metal sodium, and 60·6 parts of chlorine; but as ordinarily met with, it contains small portions of the chlorides of calcium and magnesium and of the sulphate of lime. When exposed to heat, salt produces a crackling noise, which is due to the expansion of its particles, and at a high temperature it volatilises. It is to this that the clearness with which a fire burns, on which some salt has been thrown, is to be attributed.

Table-salt is obtained by the evaporation of water from brine springs. To obtain the salt, the salt water is pumped into large evaporating pans, made of iron plates set in brickwork. These pans are often as large as seventy feet long, by twenty-five feet in width, and have a depth of one foot and a half. They are heated by several furnaces situated beneath them. When these pans are filled with brine, and the water evaporated, the salt becomes deposited at the bottom of the pan, from which it is raked by men towards the sides. The salt is then removed, and placed in wooden boxes, perforated with holes to allow the liquid brine to drain from the solid salt. When solid, the blocks of salt are removed and dried.

It is found that the character of the salt varies in fineness, according to the part of the pan from which it is removed. When taken from the hottest part of the pan, which is that part nearest to the furnaces, it is found to be of finer grain than that produced by any other part. This kind of salt is used for the table, as when crushed the powder is finer than that produced from the other varieties. In the middle of the pan, salt of a coarser grain is deposited—this is the ordinary salt—while at the other end it is deposited in crystals, which are known as bay-salt. The larger grain salt, that which combines the properties of hardness, compactness, and perfection of crystals, is best adapted for the purpose of preserving fish and other provisions, because it will remain longer between the different layers, or will be very gradually dissolved by the fluids that exude from the provisions.

In the case of bay-salt, the salt, when deposited, is not put into wooden boxes, like the fine and ordinary kind, but is deposited in coarse baskets, in which it is allowed to drain, and then dried.

During the boiling down of the brine in the pan, it is found that a film of crystallised salt is apt to form on the surface of the liquid and interfere with its evaporation; this is prevented by the addition of a small quantity of resin.

Salt is also obtained from mines, and is then known as rock-salt. Although occasionally met with white and transparent, it is usually of a red or yellow colour. In some cases it has a purple, green, or blue tinge. Rock-salt is rarely found in a state of purity, and generally contains clay, oxide of iron, and sulphate of lime. Sometimes bituminous matters are found in it, and also the chlorides of magnesium, calcium, and potassium. Occasionally shells and the remains of insects and infusoria are found in it, and give rock-salt its peculiar red or green colour. Rock-salt is never used for the table; it is sometimes employed to place in stables, for the use of horses.

Salt, when taken with the food, acts as a tonic, and tends to aid the digestive powers of the stomach, perhaps by increasing the supply of gastric juice; and also by supplying the bile with soda, assisting in the assimilation of

the fatty portions of the food. When salt is taken in large quantities, as, for example, an ounce and a half in a pint of water, it acts as an emetic.

Salt, dissolved in water, is a popular household remedy for the treatment of sprains and bruises, and when added to the water of either a hot, cold, or tepid bath, it acts as a general stimulant to the system.

GARDENING.—XXXIV.

THE PEA.

THIS is a hardy annual, of which there are two kinds, climbers and dwarfs. Each sort produces pods in pairs, and the seeds are the only parts used, if we except the sugar pea, of which, being minus the inner tough film, the pods are boiled entire while young, that is to say, with the seeds or peas in them, the same as kidney beans. The varieties of the pea are very numerous, the principal of which are, of the *earliest*, Dillistone's Early Prolific, Daniel O'Rourke, Early Emperor, Early Warwick, Sangster's No. 1, Sutton's Ringleader, and Tom Thumb; for a *second crop*, Advancer, Bishop's Long-podded Dwarf, Dickson's Favourite, Essex Rival, Dwarf Prolific, Excelsior Marrow, Nutting's No. 1, and Prize-taker; for a *general, or late crop*, Alliance, Blue Scimitar, British Queen, Prussian Blue, Champion of England, Climax, King of the Marrows, Yorkshire Hero, Knight's Dwarf, Green Marrow, Ne Plus Ultra, Veitch's Perfection, and Waterloo Marrow.

These varieties differ from each other either in the colour of the blossom, height of the stem, modes of growth, hardiness to stand severe weather, or flavour of the fruit. In respect to the time of sowing, much that relates to it has been observed in the estimate and classification of sorts; in other words, the earliest kinds should be sown in January; second early, and later sorts twice a month to the end of May; two sowings of the earliest sorts in June for a late crop, and two early sorts about the third week in November. It is the practice of many people (but a very wrong one in our opinion) to try for an early crop by sowing in warm situations in December; and after a great deal of trouble and anxiety to protect the crop from the inclemency of the weather, it more frequently happens that their trouble, anxiety, and crop are all lost together than otherwise, and thus in the long run they are no more forward than those who never sow till the middle or end of February. The fruit or produce, too, of these last is very seldom a week later than those sown in October, and frequently surpasses them in both time and prolificness.

The only remark that can be here made, in addition to what has already been said respecting the time of sowing, is that a successive crop of the same sort of pea should be sown as soon as the preceding appears above ground, and not before; but a later sort and an early sort may be sown at the same time, and the late will come in succession. The pea will grow on almost any soil, if it be rich and of a good depth. If the ground on which peas are sown requires manure, it must be well rotted—for new dung does more harm than good—and the soil for the early crops should be very dry; but for manure and late crops a rather moist soil will be most suitable. The situation for the early crops should be sheltered and the aspect sunny; but for main summer crops the situation ought to be open, and for late crops return to a sheltered, sunny border. For early sorts sow on the surface of the ground, without drawing drills, in rows three feet apart, scattering the peas about six inches broad; draw the soil on both sides of the row upon them with a rake, covering them about an inch and a half deep.

For summer and main crops, draw drills two inches deep, and, according to the sort, from four to six feet asunder, and draw the earth over them in dry weather three inches thick, but in moist weather a two-inch layer of soil will be enough. The distance the peas should lie in the row must mainly depend upon their size and the season. As the early crops appear, the soil must be drawn over them, and as they advance from half an inch to three inches high, and when the weather is dry, draw the earth to the stems, and continue gradually as they ascend.

When the plants have advanced to from six to ten inches high they must be staked. For this purpose branchy sticks must be provided, of such a height as the sort may require, that is to say, from three to nine or ten feet. In placing these sticks, set them in the ground close to the row on both sides, and lean them slightly inward. If, in the course of summer, dry weather should occur, watering will be necessary, and particularly so if the plants are in flower or the fruit swelling. Early crops are frequently gathered too soon, or when the peas are too young, for the sake of having them at table as soon as possible. In all cases they ought to be gathered while the peas are green and tender, yet they may be pretty plump. None should be left to grow old, as that would prevent the young pods filling to full perfection, and likewise tend to shorten their duration. In order to procure good seed, sow as many as you are likely to require, on purpose, and let them stand till the pods arrive at full maturity. The period at which perfection is attained will be indicated by the seed turning brown and the peas hardening, when they may be taken up for threshing out, cleaned, and stored away till wanted.

FACTS WORTH KNOWING ABOUT FISH.

FISH, when considered with reference to the nourishment which they contain, appear to rank between animals and vegetables. When fish is consumed as the principal article of food, larger quantities are required than when meat is used, owing to the smaller amount of nourishment it contains. From this cause, and also because fish is so much more easily digested than meat, food is required much sooner after a meal of fish, than when animal food is taken. Owing to its greater digestibility than meat, fish is better adapted for invalids, more especially as it does not produce feverishness, like meat diet.

The most digestible kinds of fish are those with white flesh, such as the cod, turbot, sole, whiting, haddock, and flounder, the flesh of all these possessing a whitish appearance. Of the fish just mentioned, the whiting, haddock, and flounder are the easiest of digestion.

The flesh of fish, when in good condition, is always fleshy and opaque; when it is of a bluish colour, or appears slightly transparent after being boiled, it proves either that the fish is out of season, or of inferior quality.

Sometimes fish has been found to exert a poisonous action on the system, producing headache, giddiness, and an eruption on the skin resembling that produced by being stung with nettles. In some cases, even death has been caused by this means. Although it may be true, in some cases, that the ill effects produced by fish may be due to the bad condition of health in which the patient happens to be at the time, yet in most cases it can only be attributed to some poisonous principle developed in the fish. This may be due to their being eaten in a season when the fish is out of health, and therefore unfit for food, or it may be produced by the poisonous nature of the food on which the fish has lived.

Oysters, when fresh and in season, are very nutritious; when, however, they have a bluish appearance, they are liable to produce affections of the bowels. Salmon contains much nourishment which is due to the oily matter which its flesh contains; and for this reason this fish is less suited for invalids than those of the white kind.

HOUSEHOLD DECORATIVE ART.—XL.

SHELL FLOWERS.

BEAUTIFUL groups of artificial flowers may be made very easily with shells of a common kind. Some are made simply of white shells, buff, or pink-tinted shells, of the common kind, so abundant on many of our English coasts.

Most of the shell flowers are made by means of a cement in the first place. Melt to a moderate consistency a quantity of gum tragacanth and a little alum; mix this into a thick paste with plaster of Paris and a small piece of sugar of lead. Make a ball of this, the shape of an orange—that is, a flattened round—and about half or a third the size of an orange. Let this nearly dry. Then take a stiff strong wire, long enough for a flower-stem. Wind it round with a strip of green tissue paper, half an inch wide. Thrust it into the ball of cement, upon which the flower is to be constructed. Place the wire, with the cement at the top, in a tumbler or vase, long enough to hold it comfortably; first taking a stout card, larger than the mouth of the bottle or vase, with a hole cut in it, just of a size to admit the wire stem easily, and placing it over the tumbler: this keeps the work steady. Set in the shells according to the flower to be represented, and let it remain untouched till the flower is quite dry. Then take a few short leaves, with the stalks cut off and wires removed, and gum them to the back of the flower, so that they may project all round partially. When a sufficient number of flowers are made, take a pretty wicker basket, line it with green tissue paper, and fill it with the cement. When this is nearly dry, stick the flowers in, and place sufficient leaves about them. The basket should be so well filled as entirely to conceal the cement. Do not move it until the cement is quite dry. The leaves used are the ordinary muslin ones, such as are employed for bonnets. Fig. 1 shows the lump of cement attached to wire ready for the shell-work.

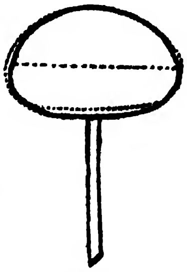


Fig. 1.


Fig. 3.


Fig. 2.


Fig. 4.


Fig. 5.

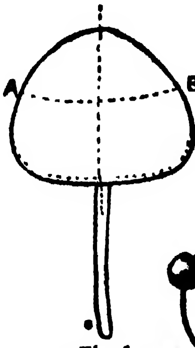


Fig. 6.

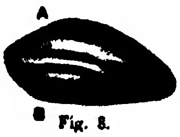


Fig. 8.

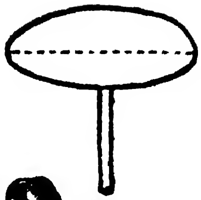


Fig. 7.


Fig. 9.


Fig. 10.


Fig. 17.


Fig. 13.


Fig. 11.

To Make a Rose.—Dip the shells (Fig. 2) into a strong mixture of powdered carmine and liquid gum. Let them dry. They ought to be of one uniform deep crimson. Put three together in the centre of the cement, folded one over another as closely as possible, to form the heart. Place a row round these, also closely, and so on, row after row, each shell slightly overlapping the other, till the cement is completely filled, and the flower finished. The shells are placed lengthwise, on end, as shown in Fig. 3. Add some leaves all round the flower, which are to be fixed on at the under part of the cement, covering it at the bottom completely. Fig. 4 is a small representation of the rose. The shells that form the rose are about half an inch long. To make a rosebud, choose shells at least half as large again; fold them over the same way in the centre, and close the succeeding shells closely round them; also, instead of placing the shells in the cement upright, as shown in Fig. 3, arrange them lengthways, as shown in Fig. 2, and put a large rosebud calyx on the stalk after the cement is quite dry. The centre of cement for a rosebud is very much smaller than for a rose, not being quite a quarter of the size.

For a *China Aster* the white transparent shells are cut in pieces, like Fig. 5, the centre being as small as possible, the largest half as large again as the diagram. In the centre they are arranged as close as possible. They are all upright, and towards the edge inclining to radiate outwards slightly. When the cement is quite dry, charge a small camel-hair brush with carmine and gum, and lightly variegate the flower here and there.

For a *Ranunculus*, shape the ball of cement like Fig. 6. Take the same kind of shell as for the rose, but rather smaller. Paint them well with a bright yellow. Set them into the cement as the rose was set, only very much closer together, each one wrapping over the other, as close as it is possible to make them, as far as the dotted line from A to B, in Fig. 6, or even lower down. Set in the rest gradually, more and more open, the last two rows radiating outwards a little. Dip a brush in carmine, and lightly mark the tips of the shells, to give them an irregular, jagged appearance.

The *Passion-flower* is set upon a cement foundation, resembling Fig. 7, only larger. A small piece of fine wire covered with green silk, such as is used for the making of paper and wax flowers, is placed in the centre.

twisted. The stamens are made of the fine ends of porcupine quills dyed blue, and set in two rows, thirty-six in the outer row and twenty-four in the inner one. The shells (Fig 8) of transparent white form the flower. They are laid on in two rows of seven each, placed alternately. The passion-flower looks pretty laid over some large camellia leaves, which may be cemented underneath it, in the manner already described.

Lilies of the Valley are made with very small, white, finger-nail shaped shells. Make a little ball of cement, the size of a small pea (see Fig. 9), and attach it to fine wire. Place round it three small shells (see Fig. 10); make a row of these fixed to a larger wire, and cover that with paper. Add lily of the valley leaves: nine make a spray. There is a small shell of the same kind, lined with a deep pink, which makes well into flowers. For the construction of these, make a perfectly flat piece of cement, the size of a farthing; attach the shells in flat-looking rows, like pink May, after fixing in the centre a green heart, such as is sold for paper or wax flower making.

White May Blossoms (Fig. 12). Make a flat piece of cement like a button, and attach it to a wire. In the centre place a May-heart, such as is sold for paper or wax flowers. Place round it four white and transparent shells. Make four or five of these, and mount again on a larger stem. Make another group of the same kind. Mix some powder-blue, cobalt, or French ultramarine with gum-water, and mark the edges with it, streaking the inside a little. Vary the marking as much as possible. Tip two shells out of the four, and leave the others; or tip three, and leave one. Let the colouring, in this case, be careless.

Fig. 13 represents another kind of flower. Make a larger flat button of cement. In the centre arrange four flat white shells, and others round them. Make a round ball of cement, like a bead, and place it in the centre. Tip and streak the shells with blue.

Pink Rosebuds.—Beautiful imitations of flowers may be made with the pink nail-like shells very common at Calais. Place them endways, in the manner shown by Fig. 3, and arrange them to resemble a rose as closely as possible. No artificial colouring is needed. Roses may also be made this way, with a very charming effect.

Laburnum.—Take a pair of small shells, smaller than those used for the passion-flower, like Fig. 8, white. Paint them bright yellow. Insert a little piece of the cement between the pair of shells. Close them over it. Attach a wire. Make about eight of them, and then form them into a spray with leaves upon a stronger wire.

Pink May.—Take the little shells lined with deep pink, the same as those used for Fig. 13. Make a small flat button of cement. Place a May-heart in the centre (a "heart," as it is technically termed, means stamen and pistils). Set round it six of the small shells (see Fig. 14). Make a group of four or six.

Geraniums.—Make a cement foundation the size of a large pea. Put in it a large green heart, as before described. Round this are four shells, arranged like Fig. 11, either shells the shape of Fig. 8, filed flat across the top, or shells so formed. Paint the upper half of each deeply and abruptly with carmine; or two may be painted thus, and two streaked—some have all four only streaked. (See Fig. 15.)

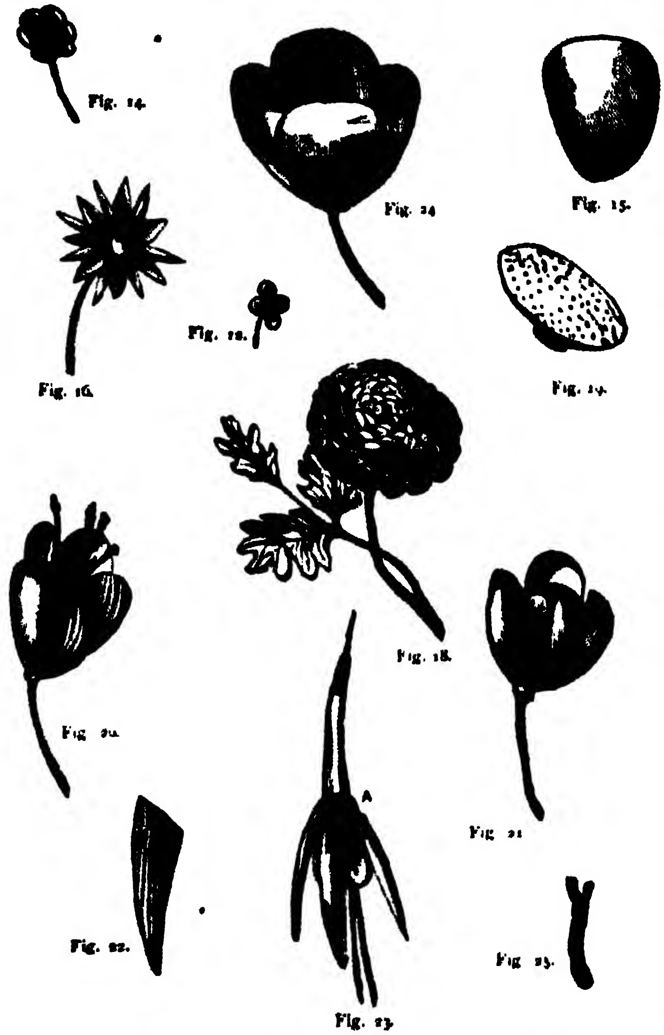


Fig. 14. Fig. 24. Fig. 15. Fig. 16. Fig. 12. Fig. 19. Fig. 18. Fig. 20. Fig. 21. Fig. 22. Fig. 23. Fig. 25.

Forget-me-nots.—A small pea should be made of cement. Attach it to wire. Paint some of the small shells, such as were used for pink May, a deep blue. Put four on the pea. In the centre put a little ball of cement and colour it yellow. Make a round group of about six. (See Fig. 12.)

Make a large pea of cement and place it on wire. Cut white shell into two sets of spikes, place six small ones round the pea, and nine larger under these. Colour the centre of the cement pale yellow (See Fig. 16.)

A Camellia.—Take shells like Fig. 8, and other shells of the same kind, one or two sizes larger. File them all off from A to B. Make a cement foundation in shape between Fig. 1 and Fig. 7, and of a large size. Take a few much smaller shells, stick them in the centre close together, points upwards and upright, to make a centre. Round these arrange the filed shells in rows, the smallest first, and curled backwards like a camellia petal. The shells used for this should be thick, white, and not too transparent. Some of the camellias can be streaked with carmine; irregular shell flowers may also be made, like Fig. 11, without a heart in the centre, but with another shell of the same kind fixed on the top of the centre to the cement, or with a little bit more cement. (See Fig. 17.)

A Dahlia.—Make a cement foundation, in shape between Fig. 6 and Fig. 1. Put a green heart of four little pieces, like Fig. 25, in the centre. Arrange in rows, row and row, shells the way up of Fig. 3. They may be gradually larger towards the edge. When finished, mix

vermilion and gum and a little carmine mixed to a deep colour, inclining most to vermilion. Speckle every shell well, to variegate it completely, and most so at the edges.

Snowdrops.—Take a few thick white shells, with raised dotted backs, like Fig. 19. Make a large pea of cement on wire. Fix in the centre an azalea head. Round this place five of the shells, overlying one another a little, and half open, like a snowdrop. The part of the shell where the shells meet when in pairs is towards the edge. Fig. 20 shows the flower.

Crocuses.—Take the same kind of shells as those used for the snowdrops (Fig. 19), and paint them bright yellow, and make them up in the same way. Or make a large pea cement; use no heart. Close three shells together first in the centre, and place three half-open shells round them, in the way shown in Fig 21.

In making the snowdrop, crocus, and geranium, it is the best plan to procure some very large rose calyxes. Cut off the projecting leaves. Fix each calyx to a stem, and then fill the calyx with the cement. Proceed afterwards with the flower as directed already. Flowers that show the join between the cement and stem white, when quite dry may be painted with powder-colour, mixed with thick gum, at that part.

Fuchsia.—To make a fuchsia, put a pea of cement on a stem, place in the centre a fuchsia heart. Round this close four small white shells, like Fig. 10, the heart hanging down in the centre. Then make the slender part of the fuchsia, marked A in Fig. 23, of the cement. Cut four pieces of shell the shape of Fig. 22. Colour them deep carmine. Fix them round in the way shown in Fig. 22, and then colour A in Fig. 23 also red.

China Aster.—There is a very pretty-looking transparent white shell, rather oval. Make a cement foundation like Fig. 1, only larger. Set it with this shell, extremely closely in the centre, and gradually more open.

Periwinkle.—Take some of the shells like Fig. 3, of a good size. Stain them a deep blue inside with powder-blue and carmine. Fix six of them on a pea of cement. Make a little pea of cement, place it in the centre, and paint it white. The shells to form this flower are fixed by the edges, like Fig. 3. (See Fig. 24.)

A Yellow Rose is made like a pink one, of the pale yellow shells of the kind shown in Fig. 2, not coloured, but naturally tinted.

A pretty flower, much like the periwinkle, may be made of nine shells placed on in the same way as the periwinkle, white and tipped with blue at the edges; the ball in the centre one tipped with white, tinged with green.

The object in filling the basket with cement is to have a material to hold the flowers, strong enough to keep them in place—for they are rather heavy—and also to prevent the basket from easily tipping over. The shells are very brittle, and great care is needed not to damage them when made; but, with proper security from injury, they will last more than one generation. Place the basket on a crimson, velvet-covered stand.

The closer the shells are set together, and the more shells are used to compose such flowers as the dahlia, rose, and anemone, the better the flower looks. If any of the colour is removed from the painted shells in making them up, when the cement has become quite dry and hard, take a brush charged with the right colour, and touch up all the damaged places. In the basket (see page 241) will be observed on the left a passion-flower, lilies of the valley, May and some other flowers; on the right, a dahlia, a small ranunculus, and part of a rose. In the centre of this basket, which is engraved from a photograph taken from shell flowers, is a damask rose; on the reverse side are a yellow rose, a large ranunculus, and China aster, crocuses, and snowdrops, and the basket is complete with rosebuds, cineraria, geranium, a camellia, fuchsias—in short, all the flowers here described with buds and leaves.

THE POTATO.

II.

A WELL-DRESSED potato has been fixed upon as a test of the merits of a cook. At the meeting of a West-End club committee, specially called for the selection of a cook, the first question put to the candidate was, "Can you boil a potato?"

Not a little depends upon the choice of the potato; some will not bear the cuticle to be taken off before boiling, others seem to be the better for it, and experience must determine whether they are to be put in the pot with their jackets on, or stripped; finally, if one variety cannot be found which shall be good from the time of raising till the summer is well advanced, two varieties may be found, one of which will be good when taken up, and the other in spring, and until early potatoes may be obtained.

It is well known that a good potato may be spoiled by bad cooking; and by good management a bad one may be rendered comparatively good. In fact, no vegetable depends more on the cooking than a potato. An iron saucepan is preferable to a tin one for boiling potatoes, as it prevents their boiling too fast. The best way is to wash them very clean, then put them on the fire with just cold water enough to cover them; when it has begun to boil, throw in a handful of salt, and add a pint of cold water, which checks their boiling, and leaves them time to be done through without allowing them to crack. As soon as done (to be ascertained with a fork), pour off the water, and set the saucepan on the fire for a short time, until the remaining moisture is evaporated. If not immediately wanted, do not place on the lid, or the steam will be confined; but cover them with a cloth. New potatoes should not be over-boiled, or they will be tasteless and watery. Potatoes to mash should be boiled firm, as above, then peeled afterwards; break them smooth, adding a little milk and salt and butter.

Count Rumford's directions are as follows:—The potatoes should be as much as possible of the same size, and the large and small ones boiled separately. They must be washed clean, and without paring or scraping put in a pot with cold water, not sufficient to cover them, as they will produce themselves, before they boil, a considerable quantity of fluid. If the potatoes be tolerably large, as soon as they boil throw in some cold water occasionally, till the potatoes are boiled to the heart, which will take from half an hour to an hour and a quarter, according to the size; they will otherwise crack, and burst to pieces on the outside, whilst the inside will be nearly in a crude state. Throw in a little salt occasionally, and it is certain the slower they are cooked the better. When boiled, pour off the water, and evaporate the moisture by replacing the saucepan once more over the fire. This makes them remarkably dry and mealy. They should be brought to table with the skins on.

The Potato Saucepan is a safe and simple contrivance for cooking potatoes by steam: it consists of a saucepan with a drainer on feet, beneath which is poured about a pint of water, which, as it boils, rises in steam through the potatoes. They should be taken off the moment when done, else, the water having boiled away, they will become burnt.

To Boil Potatoes (Scottish Method).—Wash the earth off the potatoes, and scrape or pare the skin off, as thinly as possible, not only from motives of economy, but also because the outside of the potato is always the best. Then let them stand soaking in water about two hours; wash them well; put a handful of salt in the saucepan they are to be boiled in, covering, of course, with cold water, and boil *quickly*, the quicker the better.

In *Ireland* this root is cooked so that it may have, as they call it, a *bone* in it; that is, that the middle of it

should not be quite cooked. They are done thus :—Put a gallon of water with two ounces of salt in a large iron pot, boil for about ten minutes, or until the skin is loose, pour the water out of the pot, put a dry cloth on the top of the potatoes, and place it on the side of the fire without water for about twenty minutes, and serve. In Ireland turf is the principal article of fuel, which is burnt on the flat hearth ; a little of it is generally scraped up round the pot so as to keep a gradual heat ; by this plan the potato is both boiled and baked. Even in those families where such a common art of civilised life as cooking ought to have made some progress, the only improvement they have upon this plan is, that they leave the potatoes in the dry pot longer, by which they lose the *bone.* They are also served up with the skins (jackets) on, and a small plate is placed by the side of each guest. Such is the account given by Alexis Soyer.

The Lancashire Mode of dressing Potatoes is admirable ; there, contrary to the general practice in the southern parts of England, the potatoes are first peeled. The large potatoes are cut in pieces of the same size as the smaller ones, so that they may boil equally; a little salt is thrown into the water before it begins to boil ; when done thoroughly, pour the water from them ; then place the saucepan for a very short time on the fire to dry them, and that all may be equally dried, shake the saucepan, that those at the bottom may be brought to the top.

To Fry Potatoes.—Peel and slice them thinly, or cut them as you would divide an orange ; dry them and fry them in boiling lard or dripping, and move the pan until the potatoes are crisp, when they should be taken out, drained upon a sieve, sprinkled with salt, and served.

Potato Balls.—Make mashed potatoes into balls with egg yolk ; flour them, fry them in dripping, drain them, and brown them before the fire. The above, not browned, but served with brown sauce over them, are a *ragoût of potatoes.*

The potato fibre is an excellent ingredient for a pudding. To make it plain, take two spoonfuls of the fibre after it has been strained through a hair sieve ; boil it for half an hour with a quart of milk, adding two ounces of butter ; keep stirring it while on the fire, and if it becomes too thick, add more milk ; put it into a dish before the fire or in an oven. A richer pudding may be made as follows :—Beat five or six eggs with some sugar and spice and a glass of brandy or whisky. Some add, to give it a flavour, two or three teaspoonfuls of marmalade. Let the pudding be put into a dish, and when nearly cold, pour the above ingredients into it ; mix them well, and then set the dish in an oven, or before the fire, till it has got a fine brown colour.

Potato Flour can be converted into a jelly in the same manner as arrowroot. It must be first moistened with cold water, then put into a bowl, and boiling water very gradually poured on it, stirring it all the time, and in a few minutes the jelly will be formed. A little salt or sugar may be mixed with the moistened flour before the warm water is added, and a little milk will make it very palatable. The fibrous part of the potato is a most valuable article of food, whether dried for horses or dried for cows and pigs.

Potato flour, boiled with milk and a little sugar, forms one of the most palatable, wholesome, and cheap dishes of which a labouring man can partake, and cannot be too strongly recommended to cottagers, who ought always to convert a portion of their potato crop into flour, to be used when fresh potatoes cannot be got.

Roasted and Baked Potatoes.—To ensure their being done, half boil potatoes, and finish them in a Dutch oven before the fire ; in wood-ashes ; or send them to a baker's on a dish.

Potatoes (French Method) Forced.—Boil, peel, and slice potatoes ; put them into a stewpan with butter, pepper, salt, parsley, and chives, chopped finely ; then pour in some bouillon, and a glass of white wine ; when done, thicken and season the same and serve.

Stuffed.—Hollow out large potatoes, and fill them with mealy potatoes beaten to a paste in a mortar, with chopped parsley, chives, and shalot, butter, fat bacon cut into dice, pepper, and salt ; butter the inside of the potatoes, and nearly fill them with the above paste, put them on a buttered tin, and bake them in a Dutch oven ; when browned, serve.

En Salade.—Boil, peel, and slice potatoes, and season them with oil, vinegar, salt, pepper, and fine herbs ; mix either sliced gherkins, beetroot, or capers.

Fritters.—Boil and peel potatoes, grate or mash them, and add four well-beaten eggs, a little cream, chopped parsley, chives, salt, and spice, and well mix the whole together. Drop a teaspoonful of this paste into a pan of boiling lard or butter, when it will swell into a light fritter. Or, take the mealy part of potatoes roasted under the ashes ; beat it in a mortar with a little fine salt, a spoonful of brandy, some fresh butter, and cream ; mix the whole, adding gradually a well-beaten egg ; shape the paste into small balls, which roll in flour, fry, and serve, sprinkled with powdered sugar.

Potato Cake.—Peel mealy baked potatoes, mashed, put them into a saucepan with salt and grated lemon-peel and fresh butter, well stirring the whole ; add orange-flower water, eight yolks of eggs, four whites (whisked), and mix the whole with the potato purée ; pour into a buttered mould and bake.

A la Maitre d'Hôtel.—Having lightly boiled, bake potatoes, cut them into slices, and pour over them melted butter, with parsley cut fine, and in it ; season with pepper and salt, adding lemon-juice, if liked.

Potatoes (German Method).—Fry in some butter small slices of bread and sliced potatoes, nearly boiled in water, lightly salted ; serve them on a dish, and pour over them a little bouilli of potato flour ; sprinkle them with sugar, and brown them in a Dutch oven.

In Prussia potatoes are served in six different forms : bread is made from them ; soup is thickened with them ; there are fried potatoes, potato salad, potato dumplings, and potato cheese.

Count Rumford has left these practical receipts :—

Potato Puddings.—1. Mix together twelve ounces of boiled mashed potatoes, one ounce of suet, one ounce (a sixteenth of a pint, of milk, and one ounce of cheese. The suet and cheese to be melted, or chopped as fine as possible. Add as much hot water as will convert the whole into a tolerably stiff mass ; then bake it for a short time in an earthen dish, either in front of the fire or in an oven. 2. Twelve ounces of mashed potatoes, one ounce of milk, and one ounce of suet, with salt. Mix and bake as before. 3. Twelve ounces of mashed potatoes, one ounce of suet, one ounce of red herring chopped fine or bruised in a mortar. Mix and bake. 4. Twelve ounces of mashed potatoes, one ounce of suet, and one ounce of hung beef grated or chopped fine. Mix and bake.

Potato Bread may be made as follows : The potatoes being rasped or bruised by a rasp or mill, the pulp is dried and reduced to flour, which may be made into bread with the ordinary proportion of yeast. It is then mixed with a sufficient quantity of water to form into a paste, which is not long in fermenting when subjected to a proper temperature, baking in the ordinary manner When the potato flour is mixed with wheaten flour in equal proportions, it makes excellent bread, being very light, and capable of being kept a long time. Bread made with potato flour alone is not to be compared with wheaten bread. The following is a plan for introducing potatoes into wheaten bread :—Boil five pounds of potatoes well, then dry them over a fire or in the oven until they fall to pieces and become flour, which they will do if properly

managed. Then make of them a batter like thick gruel; strain this through a coarse sieve or cullender; then mix this, instead of water, with twenty pounds of flour. If the yeast be good, the bread thus made will be as light and agreeable as that made of all flour.

Potato Cheese is thus made in Saxony:—Boil potatoes of the large white kind, and when cool peel them, and reduce them to a pulp by a grater or mortar. To seven pounds of this pulp add a pint of sour milk, and salt. Knead the whole together, cover it up, and let it remain three or four days; then knead it, and place the cheeses in small baskets to drain. Then dry them in the shade in layers in pots. They will be much improved by keeping.

Potato Beer is made in Silesia thus cheaply:—Twenty-five gallons from half a bushel of potatoes, ten pounds of malt, half a pound of hops, and two quarts of yeast. The cost of one tun of such beer is stated not to exceed two shillings and twopence, consequently the cost of a quart does not amount to one farthing.

Potatoes in Bleaching.—Substitute for soap an equal quantity of potatoes which have been three parts boiled. The linen should be well soaked in cold water and then in hot water, whence each piece should be taken out and rubbed with the potatoes, as with soap; then rolled and wrung, and then boiled again with the potatoes; and this process is repeated. It is then rinsed in soft water, pressed, and hung up to dry. The linen thus bleached will be perfectly white. Kitchen linen which has the smell of tallow becomes perfectly inodorous when bleached by this process.

Oxalis Crenata, introduced from South America as a substitute for potatoes, which it resembles, and is said to have a more agreeable flavour, may be dressed as follows:—Its stalks may be peeled, and used like those of rhubarb, in tarts. The roots may be dressed like potatoes, thus:—Set them on the fire in boiling water, and when soft pour off the water, and place some hot cinders near the lid of the saucepan, which will thoroughly dry them and render them mealy.

The Cerfeuil Bulbeux is another substitute, said to surpass the potato in nutritive qualities, and contains more starch and fatty matter, and has a very agreeable flavour. Another substitute is a gigantic yam, a yard in length, from Rio Janeiro and New Zealand; also a Chinese yam, which, in culture, needs no watching, and defies any one to pull it out of the ground, as may be done with carrots or turnips, and which is so much complained of by farmers.

Potato Yeast.—Boil and mash mealy potatoes, and beat them very smooth, add boiling water until they are the thickness of good yeast, and put them through a sieve. To every pound of potatoes add two ounces of brown sugar, and when warm stir in two or three spoonfuls of good yeast to every pound; keep it warm until the fermentation is over. Bread must be made with this yeast a longer time before it is baked. When you want it replenished, add a few more potatoes and a spoonful of brown sugar.

COOKERY.—LXII.

STORE SAUCES.

A GOOD sauce, which "tastes of everything and tastes of nothing"—that is, all the articles in it are well proportioned, and neither predominates—is so important in restoring the appetite and pleasing the palate, that to insure a supply of sauces in all seasons, and with the least trouble, is worth studying. The number of sauces has, of late years, greatly increased; but in the manufacture of some of them the quality of their ingredients is, we fear, less attended to than the taste of the consumers, and hence they are best made at home.

The Tomato, or Common Love Apple, is a native of South America; but is much cultivated in the United States of North America, and in France, Germany, and Italy, and latterly in Great Britain. When ripe the fruit has an acid flavour, and is added to soups, sauces, &c. It is also used in confectionery as a preserve, and sometimes as a pickle. As the fruit can only be kept for a short time, it is made into a store sauce, which is much prized, and is, moreover, economical. When tomatoes are in full season, gather them quite ripe, put them in a stone jar, and bake them in a cool oven all night. Rub them through a sieve, and to every quart of pulp add one pint of chili vinegar, and three-quarters of an ounce of shalots, and the same of garlic, peeled and cut in slices, and salt to taste; boil the whole together, and when the shalots and garlic are quite soft, rub it again through a sieve, and boil for about twenty minutes; bottle for storing, and resin the corks. Powdered ginger, or soy, or essence of anchovies, is sometimes added to the above. Instead of chili vinegar, plain vinegar seasoned with cayenne pepper may be used. If stored in a cool, dry place, it may be kept good for years. This is an excellent sauce for pork chops, roast pork, mutton, lamb, or veal cutlets, and calves' feet.

Mushroom Catchup is made thus, by Lady Llanover's receipt:—Cut full-grown mushrooms, stems and skins, crosswise; put a layer in an earthen pan, and sprinkle with salt, then another layer of mushrooms and salt; let them stand three hours, then pound them in a mortar, and let them stand two days, stirring them with a wooden spoon twice every day; then put the whole into jars, and to every quart add half an ounce of whole black pepper, and the same of allspice; put the jars into water, which should boil slowly round them two hours and a half; then take out the jars and pour the juice into a clean double saucepan, and let the water boil round it one hour more; pour it into a basin, and next day pour it into bottles, closely cork it, and store it in a cool, dry place. Whole black pepper and allspice should be boiled with it, and the straining can be used for hashes. The substance of the mushrooms left after straining should be pressed between two plates, and dried in a screen before the fire. When it is dry, pound it, and put it into bottles, to be used as catchup. Mushroom catchup is frequently made with stale mushrooms, whereas they should be as freshly gathered as possible, else the best flavour will be gone, and the mushrooms be in a very unwholesome state. If you see any mouldiness on the top of the catchup, or if it get thick and ropy, boil it again with some whole pepper, sliced ginger, and bay-salt; and to every quart add a pint of porter or stout, or old strong beer. Much of the catchup which is sold by grocers and oilmen is a vile compound of the liver and roe of fish, seasoned with pepper, &c. If you wish to insure catchup being good, you must use fresh mushrooms, and make it yourself.

To Pot Mushrooms.—Peel a quart of large buttons, dust them with white pepper and a pinch of pounded mace and cloves; put them into a stewpan over a slow fire, add a little butter, and stew them in it till they are tender; then put them into pots, pour the butter over them, and tie over closely with bladder.

Walnut Catchup.—Look for walnuts from the middle of July, and mix common salt with the green walnut hulls (as directed for mushroom catchup), and let them stand a week, after crushing them; then pour off the liquor, simmer, and skim it. Put to every two quarts an ounce and a half of whole ginger, the same of whole allspice, an ounce of whole black pepper, and half an ounce of cloves; boil slowly about half an hour, strain, and when cold, bottle, and keep it in a cool, dry place. A much finer walnut catchup than the above is made from the juice of young walnuts, simmered, skimmed, and seasoned as above, with the addition of anchovies, not boned (a quarter of a

pound to a quart), and when quite cold, strain and bottle for use.

Walnut catchup or liquor is the basis of most of the sauces for made dishes and fish, &c., and sold under various fanciful names. The recently-discovered "pine-apple flavouring" is used to advantage in many of these sauces; it is found in the pine-apple, melon, and some other fruits, and, being a novelty, is a desideratum in a sauce.

Oyster Catchup.—Boil two dozen of oysters in their liquor till the flavour is drawn from them, strain, and add to the liquor an equal quantity of raisin wine, with a drachm each of mace, whole white pepper, and allspice, and the thin peel of a lemon; simmer twenty minutes, and when cold, bottle with the spices in it. This catchup may likewise be made of the oysters without their liquor, beaten in a mortar, seasoned with salt, cayenne pepper, and mace, and added to an equal quantity of raisin wine; then rub through a sieve and bottle.

Sauce for Fish or Cold Meat.—Mix half a pint of chili vinegar, two cloves of garlic (sliced), two tablespoonfuls of mushroom and two of walnut catchup, and a tablespoonful of soy; put it into a quart wine-bottle, let it stand six days, shaking it often, and then fill up with plain vinegar; in ten days strain it into half-pint bottles. This sauce may be varied by adding to it anchovy liquor, or curry powder.

Essence of Lemon-peel.—Put into a Wedgwood mortar, with a lump or two of sugar, two drachms of essential oil of lemon, and pour upon it gradually a gill of spirit of wine, stirring it so as to mix the oil and spirit. This may be substituted for the flavour of fresh lemon-peel, and is preferable to "salts of lemon."

Sauce for Cold Game and Meat.—One pint of mushroom catchup, one pint of walnut catchup, quarter of a pint of soy, half a pint of French vinegar, five anchovies, three cloves of garlic, six shalots (pounded), half a spoonful of cayenne pepper, ditto of white pepper (ground), three blades of mace, one nutmeg (grated), four bay-leaves, half a lemon (sliced), and a sprig of basil; boil together one hour, strain the liquor, bottle, and cork it tight.

Essence of Anchovies.—Beat half a pound of anchovies with the bones into a paste, and put it into a pint of spring water; boil it quickly, till the anchovies are dissolved, when season it with black or cayenne pepper. If raisin wine be substituted for the water, the essence should be much finer. It should be strained through a coarse sieve, and kept closely corked, else it will soon spoil. Essence of anchovies thus made will not be of the bright colour or consistence of that generally sold by oilmen, which is thickened with starch, and coloured with poisonous Venetian red, or bole Armenian; but the essence without any colour is of greatly improved quality and flavour.

Lemon Pickle.—Peel very thinly about six lemons, take off the white, and cut the pulp into slices, taking out the seeds. Put the peel and pulp into a jar, sprinkling between them two ounces of bay-salt; cover the jar, and let it stand three days; then boil in a quart of vinegar six cloves, three blades of mace, two or three shalots, and two ounces of bruised mustard-seed; pour it boiling over the lemons in the jar, and when cold tie over. In a month strain and bottle the liquor, and the lemons may be eaten as pickle. The above is a useful sauce, especially for veal cutlets and minced veal.

Quin's Sauce.—Mix a gill of walnut catchup with half a pint of water, half a wine-glass of soy, and a gill of port or raisin wine; add six anchovies and bones beaten to a paste, or a gill of essence, six sliced shalots, and a quarter of an ounce of chilies; simmer all slowly together for half an hour, then let the mixture stand for a few days, when it may be strained through a flannel or felt bag, and bottled for use.

Flavoured Vinegar.—Put into a wide-mouthed bottle fresh-gathered tarragon leaves, garlic, sliced shalots, or fresh elder-flowers: fill up with vinegar. Infuse for a month, and filter for use. A few drops of garlic or shalot vinegar to a pint of gravy will give one of the finest flavours in cookery.

French Salad Vinegar.—Mix one ounce each of tarragon, savory, and shalots, with a few mint and balm tops; put them into a bottle with a quart of vinegar; cork it closely, infuse a month, and filter for use.

Coratch.—Put into a pint of vinegar two shalots, and a clove of garlic, sliced; two ounces of chilies, cut; a wine-glassful of soy, and the same of walnut liquor; infuse three weeks in a bottle closely corked, and filter for use. It will be improved by keeping.

Chili Vinegar.—Put into a quart of vinegar 120 small red chilies, or peppers, cut in half, and infuse for a fortnight. The bottle may be several times filled up with vinegar before the flavour of the chilies will be entirely extracted.

To Mix Mustard.—Dissolve bay-salt in boiling water (poured on horseradish), mix the superfine or No. 18 mustard to a proper thickness, stirring or beating it till quite smooth. Stir it slowly and it will keep well. A tea-spoonful of sugar to half a pint of mustard is an improvement. Epicures sometimes mix mustard with sherry or raisin wine; the French use tarragon, shalot, and other flavoured vinegars, and pepper, as do the Germans.

Curry Powder brought from India to England is highly prized; but this is a mere delusion. In India the cooks have no curry powder ready made; they pound and mix the various seeds and spices, and mix them as they require them. For use on shipboard, curry powder is made up in India, but is frequently very bad. It can be made just as good or better in England than abroad. In India, there are mild curries, and hot curries; the former contain no cayenne pepper or chilies; the hot curries are warmed, not with cayenne pepper, but with green chives, which are preferable. Curry powder consists of turmeric, black pepper, coriander seeds, cayenne, fenugreek, cardamoms, cumin, ginger, allspice, and cloves; but the three latter are often omitted. The seeds should be ground in a mill, and mixed with the powder, and a pestle and mortar, to prepare curries at the cost of about twopence per ounce. It should be kept in a bottle closely stopped. A spoonful of cocoa-nut kernel, dried and pounded, gives a delicious flavour to a curry of chicken. Rabbit, veal, calf's head, chicken, and mutton cutlet, are dressed with curry powder; but all meats make a good curry. Hare curry is extremely good, as are also fish curries, of prawns, oysters, lobsters, crawfish, sole, cod, whiting, haddock, halibut, and sturgeon. The foundation of all fish curries should be a rich fish gravy, made with the bones and some portions of the flesh—if already dressed the better. To this should be added a few onions fried in butter, and thrown with it into the gravy; add a tablespoonful of curry powder, and a piece of butter rolled in flour. Having fried your fish, place it in a stewpan; let it stew slowly, and, having prepared your rice, either serve the curry in the same or a separate dish.

Cayenne Pepper of several sorts is manufactured from the capsicum, a native of the East and West Indies. Some persons prepare their own pepper, with a view to obtain it genuine, from the capsicums grown in England; but the *Capsicum frutescens* (chil.), when dried and powdered, affords the finest cayenne pepper. The great difficulty in obtaining it genuine in England will not be matter of surprise, when the reader learns that even cayenne sold in Jamaica is prepared from several sorts of red capsicums, all much inferior in pungency and aromatic flavour to the *Capsicum frutescens.*

Savory Herb Powder.—Take dried parsley, savory, sweet marjoram, and thyme, equal quantities, half the

quantity of basil, and a few drops of essence of lemon-peel; dry them in a Dutch oven, pound them, sift them finely, and keep the powder in a closely-stopped bottle. This mixture is useful to flavour soups, sauces, and force-meat; but the flavour of fresh herbs is finer.

Malay Curry.—Mr. St. John, the traveller, saw a curry made at Manilla as follows:—A fowl was cut up into small pieces, and four dried and two green onions, five chilies, half a teaspoonful of turmeric, one teaspoonful of coriander-seed, one of white cumin, and one of sweet cumin, were provided. The seeds, turmeric, and chilies were pounded together, and the onions finely sliced; then the stewpan was buttered, and the onions slightly browned in it; next were added the pounded ingredients, with just sufficient water to make them into a paste, and the fowl was thrown in, and well mixed till the meat had a yellow tint. Then was added the cocoa-nut milk, and the whole boiled till properly done. The cocoa-nut milk is made by scraping the inside of an old cocoa-nut very fine, then soaking it in warm water, and the milk being squeezed out, the fibre was thrown away.

HOUSEHOLD CHEMISTRY.—XII.

ON DISINFECTING SUBSTANCES, AND HOW TO USE THEM.

(*Continued from p. 240.*)

SIR WILLIAM BURNETT's disinfecting fluid may be used for purifying the atmosphere of apartments occupied by the sick. The liquid is poured into saucers, and placed around the room; the instant any organic exhalations or poisonous gases come in contact with the liquid, they at once become decomposed into harmless compounds. Burnett's fluid is a solution of the chloride of zinc (a compound of chlorine and zinc), but unlike the chloride of lime, it does not give off any chlorine gas when exposed to the action of the atmosphere. It is easily prepared for this use in any quantity, by dissolving as much ordinary zinc in commercial hydrochloric acid as that fluid will take up. During solution, the chlorine of the acid unites with the metal, forming a chloride, while the hydrogen, the other constituent of the acid, escapes in considerable quantity. This gas is inflammable, and forms an explosive compound when mixed with the oxygen contained in the air. For this reason this fluid should be prepared in a room with the windows open, or in the open air.

A solution of the nitrate of lead, containing one drachm of that salt in one ounce of water, may also be used for the same purpose; it acts by removing sulphuretted hydrogen from the air, by combining with it to form a sulphuret of lead. The nitrate of lead is easily prepared, either by acting on metallic lead by nitric acid, with the aid of heat, or by dissolving the carbonate of lead in nitric acid.

How to fumigate Fever-infected Dwellings.—It is sometimes necessary to fumigate dwellings in which the inmates have suffered from dangerous fevers and other infectious complaints.

Sulphur, commonly known as brimstone, was at one time much employed for this purpose. When this substance is burnt, either by itself, or mixed with nitrate of potash (saltpetre), it combines with the oxygen of the air, producing a compound known as sulphurous acid gas, and possessing powerful disinfecting powers. When this gas meets sulphuretted hydrogen in the atmosphere, it at once decomposes it; the oxygen the acid contains uniting with the hydrogen to produce water, while the sulphur of both is set free. But if it come in contact with any organic infectious matters, it destroys them, it is thought, by depriving them of any oxygen they may contain, the sulphurous acid gas being thus converted into sulphuric acid.

The vapour of nitrous acid is another very powerful disinfectant, which was formerly much employed. To use it, nitrate of potash (saltpetre) is placed in an earthenware dish, and a sufficient quantity of strong sulphuric acid is poured over it. The sulphuric acid immediately enters into union with the potash, forming sulphate of potash, while the vapours of nitric and nitrous acids are evolved. These acid vapours act by oxidising all poisonous gases or other organic matter they may meet with.

At the present time, the agent most employed for this purpose is chlorine, in the form of gas. To obtain it, chloride of lime may be placed in an earthenware pan, and the same weight of commercial hydrochloric, or sulphuric acid poured over it. But this is an expensive way of obtaining the gas; some chloride of lime, even of the best quality that is usually met with in this shape, does not generally contain more than thirty-three per cent. of chlorine. When, therefore, the premises to be disinfected are extensive, it is advisable to obtain this gas by other means.

When two pounds, by weight, of commercial hydrochloric acid are added to one pound of the black oxide of manganese, and heat applied, chlorine gas is liberated in abundance. The substances should be placed in glass or earthenware pans; for if metal vessels were employed, they would be acted on, both by the acid and by the chlorine evolved.

The chlorine gas thus obtained is procured from the hydrochloric acid, which yields up its hydrogen to combine with the oxygen contained in the black oxide of manganese, forming water, while the chlorine escapes.

Sometimes a mixture of eight parts chloride of sodium (common salt), three of black oxide, four of water, and five of strong sulphuric acid, are employed. In this case the chemical changes are more complex. The chloride of sodium is first decomposed by the acid into sulphate of soda and hydrochloric acid, which in its turn is decomposed by the oxide of manganese into chlorine and water.

Another form for preparing the gas is that recommended by Thénard, the celebrated chemist. It consists of four parts salt, one of oxide, two of acid, and two of water.

Before commencing to fumigate an infected dwelling, it is requisite to close up, and make as air-tight as possible, all windows, doors, chimneys, and other openings through which air can enter.

After the place has been subjected for a certain time to the action of the fumigating substance employed, all the doors and windows should be thrown open, and plenty of light and air admitted.

In all cases, when the house to be fumigated contains bright steel grates, and other metallic articles, they should either be removed previous to fumigation, or else covered with a thick coat of varnish, to prevent their being injured by the action of the gas.

It has been recommended that the person who first enters the house after the fumigation is ended, should have a wet sponge tied before his mouth and nostrils. This is done in order that the water contained in the sponge may absorb and remove all the chlorine from the inspired air, and thus prevent it entering the lungs, and exciting cough and feelings of suffocation.

DOMESTIC MEDICINE.—XLIV

JAUNDICE.

THIS subject has already been treated of under the head of "Bilious Disorders." We will here content ourselves with defining the word *jaundice.* It means the retention of bile in the blood, staining the skin and the whites of the eyes yellow; and it may imply either that the liver is not doing its work properly, or that though it is doing its work properly—that is, separating the bile

from the blood—the bile does not get proper exit from the ducts of the liver. The obstruction of the ducts is generally occasioned by a gall-stone; sometimes by the pressure of an enlarged liver or other swelling pressing on them. (See "Bilious Disorders," vol. i., pp. 334, 349.)

DISEASES OF THE KIDNEY.

The kidneys are very important organs in the bodies of animals, including human beings; and medical science has been distinguished and elevated by discoveries made recently in regard to the connection between certain weak and broken-down states of health and diseases of the kidney. These discoveries are the more worthy of notice here as they were made by an English physician, Dr. Richard Bright, and constitute one of the finest pieces of medical work on record. We shall first endeavour to give our readers some notion of

The Structure and Uses of the Kidney.—Everybody is familiar with the shape of the kidneys. There are two of them in the human body, one lying on each side of the backbone in the loins. The kidneys are covered over with an investing membrane, which, in health, is transparent and smooth. They are made up essentially of exceedingly fine membranous tubes lined by peculiar cells. The tops of these tubes are thin, and so arranged as to allow of the very finest blood-vessels being spread out upon them. From the blood-vessels so spread out, the cells of the kidney secrete or separate the urine. The urine is thus constantly being separated from the blood. As it is separated it passes from the various tubes into a large space in the hollow of the kidney, and thence it passes into the passage called the *ureter*, from which it escapes drop by drop into the bladder, which, for purposes of social and general convenience, is a large hollow organ, capable of containing a considerable quantity of fluid. The kidney is a sort of scavenger in the human body; it collects and separates the remains of used-up tissues, and removes them from the body, and very serious consequences result if this process does not go on properly. The urine represents, in a great measure, the waste of the tissue of the muscles, of the brain, perhaps of the liver, and of the bones. What we mean is, that the chief chemical ingredients of the urine—the urea and the various salts of the urine—seem to be supplied by the changes going on in these various parts and organs.

It may be asked, What is the use of these things being removed from the system? The answer is, that they poison the body if they are not removed. Not only water accumulates in the system and escapes into the flesh, causing it to swell into a *dropsy*, but sickness of the stomach happens, and if the retention of the urine is complete, and unaccompanied with purging, then a fatal sleepiness or heaviness sets in, as if the patient were poisoned with opium. In most serious diseases of the kidney there occurs great deterioration of the blood, it loses its red colouring matter, and the patient becomes characteristically pale and puffy.

The Nature of Kidney Disease.—We have described the structure of the kidney and its uses, and the serious consequences that result from any interruption to the action of these important little organs. Let us try to convey, in a few words, an idea of the way in which the structure of the kidneys is either impaired or spoiled by disease. We have said that the kidney is made up of tubes lined with cells, which secrete or separate the urine from the blood, and that the kidney is covered with an investing membrane. Now, all these fine structures may be spoiled. The kidney tubes may come to be blocked up with cells; or they may be compressed from without, or the investing membrane may be thickened. It would be difficult to make non-medical readers understand these changes in particular. The most important of these are so minute as to be only detectable by a microscope. But they also tend to affect the size of the kidney, some forms of disease making the kidney larger, and others making it smaller than usual. It will be more to our purpose to make our readers acquainted with the causes which produce diseases of the kidney.

Causes of Disease of the Kidney.—There are three or four things which are very injurious to the kidneys. We may enumerate those which are most common. First, scarlet fever; secondly, hard living, especially spirit drinking; thirdly, gout; and, fourthly, the wear and tear of life in unhealthy or scrofulous constitutions. *Scarlet fever* is frequently followed by disease of the kidney, shown in paleness, sickness, some swelling or puffiness of the face, and, in bad cases, by convulsions or drowsiness. The action of scarlet fever is to load the tubes of the kidney with their peculiar cells, which are shed just as the cells of the skin are shed when the skin peels off, and the kidney is thus apt to be inflamed and disabled for duty. *Gout* irritates the kidney. We have explained, under the head of this disease, that it consists of an excess of uric acid in the blood. This, for the most part, passes out of the body through the channel of the kidneys, and, in so doing, irritates and injures them, until they become hardened, contracted, and changed in structure. *Hard living and spirit drinking* are very bad for the kidneys. The spirit has to be got rid of, and it passes, in a great measure, out of the body through the kidneys, and, as may easily be understood, it injures the fine structures. This is the sort of thing that happens when spirit drinkers break up. It means that the fine structures of their liver and their kidneys are beginning to change and to be unfitted for their duty. When spirit drinkers get a little sick, and lose all appetite, and have swellings in their feet or puffiness in their face, it means that important organs are being destroyed. And wise is the hard liver who takes warning by the very first signs of this sort. The ball is perhaps still at his own foot. At any rate no doctor can save him if he does not take a thought and mend his ways. *The wear and tear of life* in unhealthy or scrofulous constitutions may injure the kidneys, and cause the symptoms we have mentioned as indicative of Bright's disease, or disease of the kidney.

Treatment.—It will be readily understood that the medical treatment of such diseases of the kidneys is not a domestic matter. But, for all this, there are a few points in the domestic management of great importance. First, it is very necessary not to expose the body to cold or wet. Warmth of the surface of the body is very essential. Hence, children with dropsy after scarlet fever should be kept in bed. And all patients with weak or diseased kidneys should wear flannels, and be more careful of themselves in winter than summer.

STONE IN THE KIDNEY, AND GRAVEL.

This causes sudden and acute pain in one or other loin, passing round towards the groin, with sickness, and perhaps some fever. The pain is sickening in kind, and very severe. Gravel formed in the kidney may give rise to similar pain of less amount.

Treatment.—Hot fomentations. Warm drinks, especially barley-water. Avoid rich living, beer, wines, and spirits; and, if the pain is very severe, it will be necessary to consult a medical man.

PARISH LAW.—I.

Doubtless, as some of our readers are liable at any time to have greatness thrust upon them, by being elected either overseers or churchwardens of their parish, a few words on the duties of those functionaries, and on parish law generally, will not be out of place.

The affairs of a parish are managed by the ratepayers,

who meet together at certain times at what are called vestry meetings. So called, the vestry is generally selected as the most convenient place of meeting for the dispatch of the business of the parish; but it is not actually necessary that the meetings of the ratepayers should be held in that particular place.

Now, vestry meetings are of two kinds—viz., *general* and *select*.

A *General Vestry Meeting* is composed of all the ratepayers of the parish who can all attend and vote—that is to say, all who have paid their poor rates. It is convened as often as the public affairs of the parish demand.

When it is deemed necessary that such a meeting should be called, the churchwardens—having first obtained the consent of the incumbent—are the proper persons to do it. A private parishioner has no right of his own authority to do so, but he can compel the churchwardens to call one, if he can show reasonable cause for his demand.

Three days' notice of such meeting must be given. It must be signed by a churchwarden, or the incumbent or curate of the parish, or, failing these, by an overseer. A copy of it must then be affixed to the principal doors of all the churches and chapels within the parish, before the commencement of divine service. At these meetings the rector, vicar, or curate of the parish always takes the office of chairman; but should he be absent, the persons assembled nominate one of themselves to act for him. The office of secretary is filled by the vestry clerk, who, however, may be removed at any meeting, unless he be a clerk appointed by order of the Poor Law Commissioners, in a parish with a population exceeding 2,000 at the last census, in which case he can only be removed at a vestry meeting called for that especial purpose. His office is not an honorary one—a salary is attached to it, the amount of which is fixed by the Poor Law Commissioners. But he has no right to vote on, nor can he take part in, any questions put to the vestry.

A general vestry has the right of investigating and restraining the expenditure of the parish funds; of determining the expediency of enlarging and altering the churches and chapels in the parish; or of adding to, or disposing of, the goods and ornaments connected with them. It has also power to appoint surveyors of highways, and collectors of highway rates, and adopt ways, or parish roads; it can also elect churchwardens, and appoint assistant overseers. In order that the affairs of a parish may not be doomed to oblivion, vestry books must be kept, and minutes, and the resolutions of every vestry meeting fairly entered therein. These minutes must be signed by the chairman after each meeting, and any of the ratepayers present may also add their signatures if they like; but no individual responsibility is incurred in so doing, unless, indeed, the resolution or minute so signed expressly states so—in that case all who sign it are individually liable.

Select Vestries are composed of a certain number (which must not exceed twenty or be less than five) of householders or occupiers within the parish, who are elected by the ratepayers at a general vestry meeting, of which ten days' notice must be given. After they are elected by the ratepayers, their appointment must be signed by a justice of the peace. They must meet once, at least, every fortnight, or oftener if necessary, and their especial business is to inquire into the state of the poor of the parish. Any three members of the select vestry shall form a quorum, provided that two shall be either churchwardens or overseers. They must lay a report of their proceedings before the general vestry meeting twice a year at least, which is generally done in October and March; but they are not limited to these periods, they can report whenever they think fit. The general vestry must, however, give ten days' notice of the meeting to receive their report.

In matters determined upon at a vestry meeting there must be a majority of the votes of those present in favour of the resolution; those who object to take part in the voting cannot be treated as absent; the mode of election is by a show of hands, or a poll. In case of an equality of votes, the chairman, in addition to his other, has the casting vote.

When two or more of the inhabitants present are jointly rated, each must vote according to the proportion borne by him of the joint charge, and when only one of the persons jointly rated attends, he must vote according to the whole of his joint charge.

Perhaps—before we go further and examine the qualifications for the duties of the office of *churchwarden* and *overseer*—it would be as well to explain the meaning of the terms, "parish" and "ratepayer," of which we have had so frequently to make use. A parish, then, is a district which has a separate ecclesiastical jurisdiction, and in which a vestry has been constituted, and held for parochial as well as ecclesiastical purposes; which maintains its own poor, and for which it has separate overseers. The ratepayers of a parish are those persons whose possessions are rated for the relief of the poor of the parish. This rate is levied by the churchwardens and overseers, and is not valid till it has been allowed by the justices of the peace for the district in which the parish is situated. The principle of this rate and the persons on whom it is levied, will be explained hereafter. Every ratepayer assessed under fifty pounds is entitled to one vote at a vestry meeting, and he has the privilege of another vote for every twenty-five pounds for which he is rated above that sum; but at no time can he have more than six votes. A ratepayer, if he has refused to pay his poor rate, must neither attend nor vote at the vestry meetings; but a person who has become an inhabitant of a parish since the making of the last rate is entitled to vote in respect of his property, which, though not actually, is liable to, and will be, assessed at the next rate.

Having discovered what a vestry meeting is, and the persons of whom it is composed, let us next inquire into the duties of the parish officers. We will begin with the churchwardens.

To be qualified for the office of churchwarden, a man must be a ratepayer and a householder. They are generally two in number, but by custom in some parishes only one is appointed. They are elected the first week after Easter every year, and are chosen jointly by the parishioners and the incumbent; but in case of any dispute arising between them, the former chooses one and the latter the other. But in nearly all the parishes in London they are by custom chosen by the parishioners, the incumbent having no voice in the matter. After they are elected they must take an oath to do their duties to the best of their ability. They continue in office for one year, but are eligible at the end of that period for re-election. The chief part of their duty is connected with the internal regulations of the church. They must see that the curates are duly licensed by the bishop of the diocese, and that no unqualified persons preach or conduct the service. They must also preserve order when service is going on, "and to this end," says Blackstone, "it has been held that a churchwarden may pull off a man's hat in church without being guilty either of assault or trespass." But they have no power to interfere with the incumbent in his conduct of the service; if they have any cause of complaint against him they must wait till the visitation, when they can report him. In the case of sequestrated livings, the churchwardens' duty is to manage them during the vacancy. When their term of office has expired, they must make up their accounts, and for all sums they have expended above forty shillings they must produce vouchers and receipts; but for items under that sum their bare word is sufficient.

HOME-MADE WINES.

V.

Mulberry Wine.—Squeeze the juice from ripe mulberries, and to every gallon add four pounds of lump sugar. When the sugar is dissolved, put it into the cask. It may be bottled in twelve months.

Mead Wine.—To ten gallons of water put ten pounds of honey and a quarter of a pound of good hops, boil for an hour, and when cooled to the warmth of new milk, ferment with yeast spread on a toast. Let it stand in the tub two days; then put it into the cask. This will be fit to bottle in twelve months. Honey of a year old is better for the purpose than new.

Elderberry Wine.—To one gallon of water put two quarts of ripe elderberries; boil for half an hour; then strain, and to every gallon of liquor add three pounds of coarse sugar and a quarter of an ounce of mixed cloves, cinnamon, and ginger. Let it be boiled again freely for half an hour, and as the scum rises remove it. When cooled to the proper temperature ferment with a little yeast on a toast; let it stand in the tub two or three days; then put it into the cask with one pound of raisins to each gallon of wine. The spice should be boiled in a bag and afterwards put into the barrel. This will be fit for use in three months.

Parsnip Wine.—Boil eighteen pounds of parsnips in ten gallons of water till they become quite soft; strain and squeeze out the liquor, and to every gallon of it add three pounds of lump sugar; boil for three-quarters of an hour, and when cooled properly ferment with a little yeast on a toast; let it stand ten days in a tub, and stir every day; then put it into the cask. This will be fit to bottle in about six or seven months.

Cowslip Wine.—To every gallon of water put three pounds of lump sugar, the rind of one orange and one lemon, and the whites of six eggs beaten to froth; boil for half hour, and carefully skim off the scum as it rises the whole time; then put to it the above fruit and three quarts of cowslip pips. When sufficiently cool ferment it with yeast on a toast, and, on the following day, put it into the cask. Stir it every day for a fortnight, and then bung it down. It will be fit to bottle or drink from the cask in seven weeks.

Dandelion Wine.—Boil the water and pour it into a pan or tub. When the steam has blown off put into each gallon of water four quarts of the yellow petals of the dandelion, and stir them well in; then cover it over with a cloth; let it stand three days and stir frequently; then strain out the flowers, and add to each gallon of liquor three and a half pounds of lump sugar, the rind of one orange and one lemon, and a little ginger, and boil for half an hour; then cut the orange and lemon in slices, and put them into the hot liquor, and, when sufficiently cool, ferment with yeast on a toast; let it stand a day or two to ferment, and then put it into the cask. It will be fit to bottle in two months. It should be remembered that the only part of the dandelion flower to be used is the outer fringe of yellow petals.

British Madeira.—To ten gallons of water put thirty pounds of moist sugar, and boil it for half an hour, taking off the scum. Let it stand till cold: then to every gallon of liquor add half a pint of good new ale out of the working tun, while in a state of fermentation; let it remain a day or two to ferment in an open vessel, and then put it into the cask, with one pound of sugar-candy, nine pounds of chopped raisins, half an ounce of isinglass, and one quart of brandy. It will be fit to bottle in a year. This wine can of course only be made by those who brew at home. If kept long enough it is a really excellent wine.

Concluding Remarks.—All wines prepared from home-grown fruits should be made at the time when the particular fruit is most in perfection, and, to ensure good wine, all damaged fruit should be carefully picked out. The above remark, as to time, will also apply to those wines in which foreign fruits form an important part. Raisin wine should be made in the autumn when the new supplies have just been received; orange wine should be made in March when that fruit is at its best; and wine of this description frequently proves of an inferior quality through the neglect of this rule, and through the best season for oranges being allowed to pass before it is made. Ginger wine should be made at the same time, on account of the oranges and lemons used in it. Cowslip wine also is, for a similar reason, in the opinion of some good makers, best made at the same period, the cowslip flowers being added afterwards at their time of blooming, and merely put into the cask. We need scarcely remark that this method of making applies equally to other wines of a similar nature.

BEAD-WORK, Fig. 2 (see page 260.)

Those wines which are made from fruits (except in certain cases where the fact is noticed in the receipts) contain a sufficient natural ferment, and require no yeast. With them the fermentation generally takes place in the cask, and it is not necessary to allow time previously for that operation.

Those wines which are not made from fruits must be worked with yeast, which must be done in an open vessel, for a shorter or longer period, before putting into the cask. Before being fermented, they must be allowed to

cool to the temperature of new milk; a small quantity of yeast should then be introduced. The method of doing so is by taking a piece of toast, and either dipping it in the yeast, or spreading the yeast thickly on both sides. This is plunged in the *must*, or unfermented wine, and allowed to remain till the process of fermentation is well advanced. A piece of toast three inches square will retain enough yeast to ferment twenty gallons of must; but it is essential that the yeast should be fresh and good.

Generally speaking, wines demand less attention during fermentation than beer. Their ingredients are such as induce a free, though not a violent degree of that process. Encouragement is rarely needed beyond stirring occasionally which disseminates the yeast throughout the whole must - or covering the vessel in cold weather. If, however, the fermentation should be found too languid, it may be increased by taking out a little of the must, warming it, and again mixing it with the whole. Too rapid a fermentation, on the other hand, may be checked by cooling, or by skimming off the head of yeast, which takes away the more active principle. The above remarks apply to working in the tub. Fermentation in the cask may be checked by using isinglass, which precipitates the yeast to the bottom, or by racking off, which leaves much of the yeast with the lees; and the process may be wholly stopped by racking the wine into casks, in which, after a little wine has been poured in, sulphur matches have been burnt they evolve sulphurous acid gas, which is anti-fermentive.

It is always essential that the casks for made wines should be sound and good, and that they should be thoroughly cleaned and well dried before being filled. The old plan of rinsing the barrel with brandy before filling it, is now almost obsolete, and we are ourselves no believers in its efficacy.

Indeed, to the use of brandy in made wines generally, we are opposed. The old idea that it tends to make them keep better is proved to be a fallacy, and if it has any effect it will be an opposite one; moreover, the delicate flavour of some wines is completely spoiled by it. In our receipts we have given the quantities generally used, for the benefit of those who may choose to adhere to this long-established practice; but we do not use it ourselves, and should recommend that wherever a quart of brandy is mentioned, two pounds of sugar should be substituted for it.

In filling the casks, the wine should not be made to rise higher than to within three or four inches of the top, or till it can be touched with the finger. This is most essential when the whole process of fermentation has to be carried on in the cask; for, if no space be left, the yeast will be thrown out, and enough active principle will not be left in the must to complete the process properly. But the wine will not be so good if the casks are only half filled, or if a greater space than the above is left, as the quantity of air left within the barrel will then act prejudicially upon it.

The bungs should not be placed in the casks till active fermentation is over. The arrival of that time may be ascertained by the cessation of the hissing sound by which fermentation is accompanied. They should then be put in, but not tightened; and should be removed once in every few days until the wine becomes quite quiet. They should then be driven in, and brown paper may be pasted over them to render them still more air-tight. Some persons place a layer of damp sand over the heads of the barrels for the purpose of more effectually excluding air.

To render the wine clear, isinglass may be infused, or the wine racked off; but as both these processes tend to check fermentation, they should not be resorted to till that process has ceased, or has been sufficiently proceeded with.

The proper period for bottling wines will vary according as they are to be sparkling, sweet, or dry; but no wines should be put in bottles till they have become clear, or till they have lost a great portion of their sweetness. Sparkling wines should be bottled early, before the slow fermentation has exhausted itself, otherwise the wine will be in danger of going sour, and will not effervesce. Sweet wines should remain in the wood somewhat longer; but not till they have lost more than their superabundant sweetness; and wines whose chief excellence, like cowslip, consists in a delicate flavour, will deteriorate if kept long. Such wines should always be drunk before they are two years old; but dry wines, such as raisin and mead, cannot, in moderation, be kept too long in the cask. They will somewhat decrease in quantity, but all that filters through the wood will be water, and they will consequently increase in strength; also the ripening process, which these wines require, goes on much more rapidly in the wood than in bottles. Such wines should never be bottled before they are a year old, and if they can be allowed to remain for four or five they will gain by it in quality. All wines are better when made in large quantities; but to be made and kept in large quantities is essential to the perfection of dry wines; and when kept in large casks for a sufficient length of tim our raisin and mead may be made equal to sherry, and our mulberry and sloe to port.

PARISH LAW.

II.

THOUGH we have said that the churchwardens' term of office lasts for a year, yet it does not of necessity do so, for they can at any time be removed for misbehaviour, and others chosen in their place. They are *ex-officio* members of a select vestry, and overseers in a parish maintaining its own poor. They are also for some purposes a kind of corporation at common law; that is, they are enabled by that name to have a property in goods and chattels, and to bring actions for them for the use and profit of the parish. But though they are, as we have just said, a corporation for some purposes, yet, not having a common seal, they cannot bind their successors by a covenant, nor can they purchase lands or take them by grants, except, indeed, in London. Therefore, gifts of land to the parish should be made to trustees. They cannot therefore, of course, grant leases of such lands or maintain any action upon them; indeed, they have no sort of interest in any real property of the parish, and if any damage is done thereto the incumbent only has the right of action. But, nevertheless, they can, jointly with the overseers, purchase houses for the purpose of putting the poor into, and they can also, as a body corporate, enter into any reasonable agreement beneficial to the parish, which will be binding on their successors.

Now, though the churchwardens as a corporation have a property in goods of the parish, yet they do not in reality belong to them, but to the parishioners; therefore they cannot dispose of them without the consent of the latter, who cannot, however, sue the churchwardens upon them should they make any improper disposition of them. Their only remedy is to remove the churchwardens from their office and appoint fresh ones, who will have the right to call their predecessors to account and sue them. But both must join in the action, as no property vests in one churchwarden, unless, indeed, by the custom of the parish only one was originally appointed.

The next officers to whom we must direct our attention are the overseers of the poor. They must not exceed four in number, nor be less than two; an appointment of one overseer alone for a township is bad in law. They are

appointed by two or more of the justices of the peace for the county in which the parish is situated, on the 25th of March, or within fourteen days after it. They must, like the churchwardens, be ratepayers and householders. If a person is dissatisfied with the appointment, be he the appointee or only an ordinary ratepayer, he can appeal against the order of the justices at the next quarter sessions; but a person once appointed must not refuse to serve, for any person refusing to serve as overseer can be indicted for so doing. His only remedy, as we have just said, is by an appeal to the quarter sessions. Upon their appointment they receive a printed list of their various duties, the principal of which is to levy the poor rate, together with the churchwardens.

There is only one more official that we need speak of, and that is the parish constable. All able-bodied residents, with certain exceptions, between the ages of twenty-five and fifty, who are rated on any tenements at £4 or upwards, are liable to serve in this office. They are chosen every year at a special petty session which is held for the purpose by the justices. Before they serve they must be sworn in: for it has been held that no person can act as a peace officer unless he has been regularly sworn in to that office. They need not serve beyond their own parish unless ordered to do so by special warrant from the justices.

The rating of a parish next claims our attention. Let us first see who are the ratable subjects.

Every inhabitant—that is, every person permanently resident and sleeping in the parish—the parson or vicar, and every occupier of lands, houses, tithes, coal mines, or saleable underwood situated in the parish, whether resident or not, is liable to be rated for the relief of the poor, the parson or vicar being rated in respect of his tithes. But lands, houses, and buildings belonging to a society instituted exclusively for purposes of science, literature, or the fine arts, are exempt from liability to be assessed to the poor rate, provided the promotion of science is its primary object, and there is an express rule prohibiting any profit being divided amongst its members, and the society is certified by a barrister appointed to certify friendly societies.

The poor rate is imposed in respect of the value of the occupation of the ratable subject, and not the value of the ratable subject itself. It is levied by the overseers and churchwardens, and then sent up to the justices for approbation; and if they allow it, notice of the rate must be given by the overseers on the Sunday next after it has been so allowed, and copies of such notice must be affixed, prior to divine service, on or near to the principal doors of all the churches and chapels in the parish.

Church rates being no longer compulsory, it will only be necessary to say a few words about them. A general vestry meeting may make and assess a rate, but of course it will not be enforceable against the ratepayers, the payment of it being in the nature of a voluntary contribution.

Tithes are now commuted into a rent-charge, the amount of which is adjusted annually, according to the average price of corn. If the tithe commissioners do not make the commutation, it may be effected by a parochial agreement, confirmed by the commissioners. The value, whether agreed upon by the parish, or awarded by the commissioners, is to be considered as the amount of the total rent-charge to be paid in respect of the tithes, regard being had to their average productive quality. The rent-charge is to be paid to the original tithe-owner by two half-yearly payments. No one can be arrested for non-payment of tithe rent-charge. When it is in arrears for twenty-one days, the remedy is by a distress on the land. When for forty days and upwards, and there is not a sufficient distress, a writ may be obtained from one of the superior courts to assess the arrears, after which the owner of the rent-charge may sue out a writ of execution for holding the lands till his debt and costs are paid; but neither the distress nor execution can be taken out for more than two years' arrears. When a tenant quits, leaving any tithe rent-charge unpaid, the incoming tenant or landlord may pay the same, and recover from the outgoing tenant, as for a simple contract debt.

THE TOILETTE.—XX.

THE TEETH (*continued from p. 243*).

Tartar.—We have already stated in a casual manner that tartar is an earthy deposit, which is made up of the solid constituents of the saliva, and accumulates around the necks and crowns of the teeth. The result of the deposit of tartar about the teeth is to cause the gums to be irritated, and then loosened from the teeth. When much tartar has collected about the teeth, it should skilfully be removed by a dentist, and only by a dentist, who will probably recommend some preparation of his own selection, to restore tone to the gums. The following is a good lotion, to be freely used, after the removal of tartar, to strengthen the gums:—

Tannin	1 scruple.
Brandy	½ ounce.
Camphor mixture	4 ounces.

To be used as a mouth-wash night and morning.

In those in whom there is a disposition to the formation of tartar about the teeth, it is only necessary, for preventing its accumulation, to be very careful to cleanse the teeth thoroughly once a day, better still twice, with a tooth-powder that is somewhat gritty; all the better is it if the gritty particles are soluble in water. The simple powders composed of chalk or cuttle-fish may be with advantage employed.

Decayed Teeth.—We have before spoken of the influence of weakly constitutions, dyspepsia, the too free use of sweets, and such-like causes, in leading to early decay of the teeth. We now desire to point out how great are the evils that result from permitting decayed teeth to remain in the mouth. In the first place, decayed teeth are liable to be attacked with toothache; this, in itself, should make one anxious to get rid of bad teeth, but then there is much more than this—mastication cannot be rightly performed; the food is not therefore properly pounded up and mixed with saliva, and hence cannot be digested but with difficulty. Again, decayed teeth foul the breath, and induce irritation and an unhealthy state of the gums, abscesses about the fangs, and indirectly disorder the stomach in so doing. The presence of decaying teeth, inducing foul and offensive secretions and breath, must, of necessity, take away appetite. The sooner decayed teeth are seen to, the better. A decayed tooth should be examined by a dentist, and attended to in the way of stopping or extraction, whenever and wherever found. The public are by no means sufficiently aware of the great influence which bad teeth exercise upon the general health of those who unfortunately possess them. The same remark may be made with greater force, perhaps, in the case of old stumps left in the gums. We do not speak now of neuralgia or toothache, because this must be treated of under a distinct and separate head. Remarkable and numerous instances of the various inconveniences and different sufferings that decayed teeth and old stumps may occasion have been put on record by different authorities on the subject. Ulcers and abscesses about the jaw and chin, ulcers of the tongue, disorders of the eye and ear, epilepsy, headache, have been found to be dependent upon the irritation set up by diseased teeth, and to disappear after the removal of the latter.

HOUSEHOLD DECORATIVE ART.—XLI.

BEAD MOSAIC.

BEAD MOSAIC differs from ordinary bead-work in this respect—that the beads, instead of being sewn upon canvas, or some other textile fabric, are fastened by cement to some hard and firm background, such as one composed of wood or metal. The art is applicable to many purposes, for which common bead-work is unsuited; and it moreover has the advantages of being executed with greater rapidity, of possessing great durability, and of being more easily repaired in case of injury, than that method of decoration.

Materials. All descriptions of glass beads may be used for this art, except, perhaps, those of extremely large size and of eccentric shapes, the different ordinary sizes and shapes being applicable to different positions and purposes. For such fine and delicate work as is to be placed near to and upon a level with the eye, small beads are most pleasing in effect; but when the work is to be considerably elevated, or is intended to be seen from a distance only, tolerably large beads are to be preferred. Generally speaking, neatly rounded beads are those most appropriate; but in some parts of the work, as, for instance, where perfectly straight lines have to be represented, those mere pieces of glass tubing cut in lengths, and known as "bugles," may be found serviceable, and time will be economised by using them. Beads of as many different colours as possible should be provided, and the mosaicist will do well to have a large stock of these to select from; but those beads which are of mixed colour should be avoided, as they will give more trouble, and not be so good in effect as the self coloured beads. If gold beads which are thickly gilt with genuine metal can be procured, they will be of great value for enriching the work; but there is much danger to be apprehended from using cheap and inferior gilt beads, owing to the liability of the metal, with which they are coated, to become tarnished. Steel beads should also be avoided, as being liable to rust. In any one panel of the work, it is well that all the beads used should be as nearly as possible of one size, or the surface will not be even.

Cement.—There are two or three kinds of cement used in bead mosaic. Mastic cement, which is made in the following manner:—First dissolve mastic in as much spirits of wine as will keep it liquid; then in another vessel dissolve in brandy as much isinglass as will make about two ounces of strong glue; add a small quantity of gum galbanum. Then mix the whole together, which is best done by exposing the vessel it is in to sufficient heat; put it into a bottle, and when wanted for use dissolve it by placing the bottle in warm water. This makes the strongest cement, and one which should therefore be used for large work and whenever beads are to be attached to metal. A more easily prepared cement is made by moistening isinglass in as much acetic acid as will quite dissolve it; or (another) by melting best Russian glue and adding to it a small quantity of flake-white. All these cements must be applied warm; but the latter is inapplicable where tracing is necessary, as it will completely obscure it.

Groundwork.—The groundwork on which to lay the beads may be either of wood or metal, or in some cases the mosaic may, if desired, be applied to evenly plastered walls. Where panels of wood are employed, it is always desirable that they should be formed of mahogany, that wood being the least liable to warp; and if a large panel has to be used, it should, for the same reason, be formed, not of one piece, but, of several, neatly joined and glued together. In many cases a less expensive, and at the same time sufficient, background may be made of metal. Sheet iron is best, as zinc, which would in other respects be preferable, is liable to warp and bend with changes of temperature. If the mosaic is to be made upon a plastered wall, it will be necessary to neutralise the porous nature of that material, by first brushing it over with size. Whatever substance is used for a background, it will be well, before commencing, to paint it white, in order that the drawing of the design may be seen more plainly, and also that the brilliancy of the beads may be enhanced. It will in all cases be necessary that a rim, as of wood, or a gilt moulding, should surround the space to be filled, to give support to the mosaic, and to prevent its being displaced by accidents.

Fig. 1.

Process.—The ground being prepared, the design is drawn or traced upon it. Any design originally intended for Berlin wool-work can be reproduced by this art; but bead mosaic is more easily adapted to pictorial effect than is wool-work, and almost any illuminated design, ornamental border, or even picture, may be imitated in it with considerable fidelity. The mosaicist who possesses some artistic ability will of course prefer to make use of his own designs; and of the treatment proper to be observed in these, we propose to speak hereafter.

Suppose, then, that the design from the well-known fable of the "Fox and the Crow," given as the centre of Fig. 2 (page 257), has been traced on the panel. A quantity of one of the two first given cements, which are transparent, should be warmed, and a coat of it spread with a brush over the whole panel; when this has somewhat dried, a smaller brush should be taken, and a little of the cement applied with it to a portion of the outline of one of the objects in the design, as the back of the fox. To hold the beads while at work, it is well to have a number of little china palettes, or similar shallow receptacles, into which a small number of each of the different coloured beads may be poured. From one of these, with a box-point, finely tapered to enter the holes in their centres, take some of the beads of the required colour, and arrange them side by side in a row within the outline; carry this round the entire animal, varying the shade as required, and applying more cement from time to time. Inside this

line another similar one must be placed in the same manner, and if the object to be represented be of a large size, three or even more of these outline courses will be desirable; but for small objects two will generally be sufficient. After this the interior has to be filled up, by working across it, in curved lines (according to the direction of the shading) in a rounded object, and in straight lines in a flat one. In a similar manner all the other objects in the design would be worked. Afterwards the background must be filled up, by placing, first, a single row of beads, following the outline of the object with which it comes in contact, and by filling the remainder of the space in straight or curved lines, as may be best suited to its character. Thus, in the example given, the wall in the background would be composed of straight is difficult to give the more delicate gradations of colour and to represent perspective with accuracy. The same difficulty will be found in dealing with flowers and many natural objects. As in illuminating, it is better to treat such objects in a conventional manner, than to aim at exact representations of Nature. For decorations to be placed above the eye, gold beads, if of good quality—or in default of them, such beads as in colour most nearly approach gold—will always be found an agreeable background, and in such situations the figures or other objects represented may always be rendered more effective by surrounding them with an outline of black or other deep-coloured beads. Where a rim of dark wood surrounds the mosaic, it will always be well to place next it a border of gold, yellow, or other light beads; but where the rim

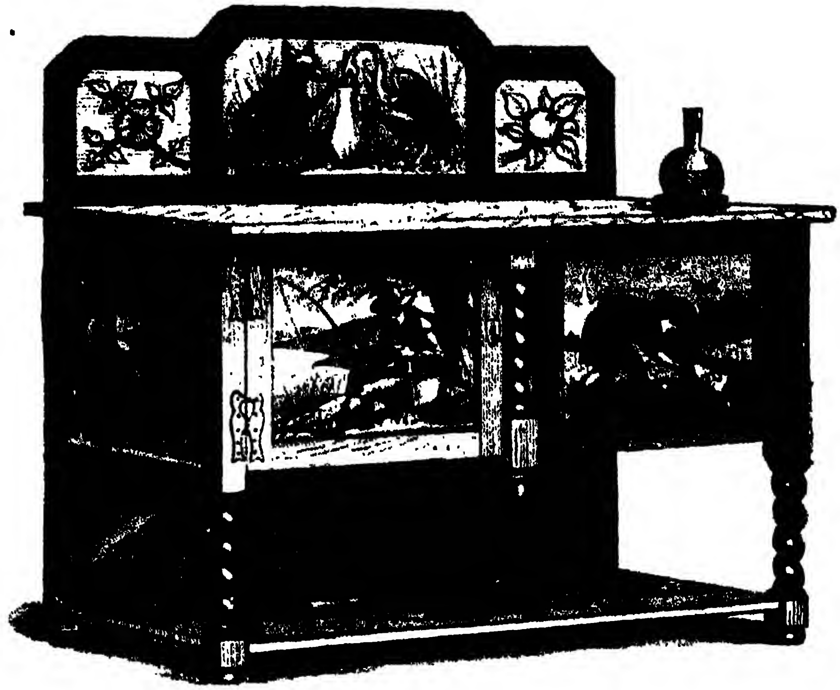


Fig 3.

rows of beads, while above and below it the lines might be flowing. As the work proceeds, it should be smoothed and flattened, by pressing it gently with a small and perfectly smooth piece of ivory or boxwood; and when the whole design is finished for the purpose of finally correcting any irregularities of surface a piece of paper should be laid over it, and it should be pressed down with a flat iron, moderately heated.

Finally, linseed oil must be spread over the work, and allowed to run between the beads, and finely-powdered whitening sprinkled upon it, and well worked with the brush into the interstices. This will at the same time thoroughly cleanse the surface from any cement, and by forming a kind of putty between the beads, combine them into a compact mass. The face of the bead-work may be wiped clean with a soft rag. In a few days, when the linseed oil and whitening have become thoroughly dry, and have set, the whole will be so firm that it will bear any reasonable amount of rough usage without injury to the work.

The subjects most easily worked in bead mosaic are those of a flat character, such as geometrical patterns, and the art is admirably adapted to the representation of heraldic devices. Strictly pictorial subjects are more difficult of treatment, especially if they are to be brought very near to the eye; since in such a material as glass, it is gilded, if there be no suitable dark colour next it to the design, a border of black beads should be placed adjoining it.

Application.—Although bead mosaic is by no means ill-adapted for wall decoration, the small size of the pieces employed renders it too laborious a method to be used for large surfaces, and for such the legitimate mosaic with glass tesseræ is better; but for such limited spaces as those in which it can be introduced in panels, the art is always applicable. Elegant enrichments for a mantelpiece, with panels of mosaic surrounding a pier-glass may be thus formed, or the frame of a large movable looking-glass may be very beautifully decorated by means of it. To the panels of screens, sideboards, cabinets, and other articles of furniture it may also be applied, as well as to the tops of stands for tea-urns, flagons, &c. In Fig. 1 we give a design for a panel in heraldic and flat ornament, capable of being used in the decoration of a number of articles. Fig. 2 (page 257) is a pole screen; the subject in the centre is from a popular fable of Æsop's, and is intended to be worked as nearly as possible in the natural colours. The panels in the sideboard (Fig. 3) are to be worked in the same manner; and these also illustrate well-known fables. The wood-work of the pole-screen is supposed to be of dark mahogany; that of the side-board of dark oak or imitation ebony.

DINNER-PARTIES.

II.

To the uninitiated, the ordering of a formal dinner is a perplexing question that seldom admits of solution, save by the aid of an experienced cook and confectioner. The order in which the courses should succeed each other, and the various kinds of wines and viands that it is proper to introduce at certain stages of a ceremonious repast, are matters that few young housekeepers are competent to decide without referring to some well-informed source. To remove any embarrassing doubts, and to supply trustworthy information, is the especial design of the HOUSEHOLD GUIDE; and the object of the present series of articles on dinner-giving is to make clear every detail of the matter under consideration. To those who are already well practised in the art of dinner-giving there may be nothing new to suggest; for in the present plan we purpose confining our remarks to the customs in most general use throughout English society.

The first question for the intending dinner-giver to decide is whether the repast shall be served *à la Russe* or in the modified English fashion. By the former system, no eatables are placed upon the table save bonbons, which are used with fruit and flowers to decorate the dinner-table. All else is handed round, having been previously carved at the sideboard. The dinner *à la Russe* is a most enjoyable meal *well served*, because the host and hostess—to say nothing of the guests, who are sometimes pressed into the service as carvers—are left at full liberty to entertain their friends by joining freely in conversation. But no method of serving a dinner is more dependent for success on the efficiency of servants. Ordinary domestics are not equal to the task: therefore, except in establishments where servants are especially engaged to discharge the office, a modification of the dinner *à la Russe* generally prevails in England.

In accordance with the latter system, the table is laid as described in a foregoing article, sufficient space being left to admit of any required dishes being placed opposite the host and hostess. At ceremonious dinners, all what are commonly called "side dishes"—such as ham, tongues, &c. are banished to the sideboard, to be there carved and afterwards handed round to the company. It is not unusual to have the different *entrées* placed upon the table, not that the guests may help themselves and neighbours, but that the company may see of what the course consists. If the latter arrangement be not adopted, it is usual to have a written *menu*, or bill of fare, placed before each guest, in order that appetite may be reserved for any dishes preferred. Slices of ham, tongue, or any similar meat, when carved at the sideboard, are handed round in a separate dish, just as the accompanying vegetables and sauces are served.

At dinner-parties, three courses and dessert are the usual rule. *Entrées* and *removes* may be more or less numerous, according to the character of the repast. With regard to the serving of the latter, *entrées* or made dishes always appear between the first and second course, and removes take the place of the roast joint and poultry. Game, when in season, ducklings and green peas, savoury puddings, or even a dish of macaroni or an omelette, may constitute a remove.

In many cases removes are dispensed with as a separate course. Game, or its representative, is at such times placed upon the table at the same time as the pastry. The third course consists of pastry, creams, jellies, &c. Cheese, butter, celery, and mixed salad are handed round before dessert. The cheese is to be cut into dice on a small dish or plate, and on no account should be served from the table. Dry biscuits and "pulled bread" are a favourite accompaniment of cheese. Some persons prefer to introduce anchovy and sardine toast at the latter stage of the dinner. The intention is to refresh the palate for wine, but of course the practice is not much in vogue when ladies are diners.

Salad, which occupies a very subordinate place at English dinner-tables, is much appreciated in France, and, instead of being reserved till the finale of a dinner, is considered very welcome as an *entrée*, and as an accompaniment to all stewed meats. Iced pudding is served immediately before dessert is placed on the table, and sometimes a second course of ices is served at dessert.

The selection of wines should be in harmony with the principal viands that are to constitute the repast. Each kind of wine has its distinct place at a dinner, although individual tastes may occasionally lead a host to depart from established custom. Three or four kinds of wine are as many as any sensible dinner-giver introduces. Of these, sherry, hock, champagne, and claret are the most esteemed. Port is now seldom drunk at table. At dessert it still appears when people are supposed to have a preference for the wine; but it is not in much favour, except with elderly people and invalids.

The following is the order in which wine is generally served. Sherry, as we have already observed, should be always placed on the table in small decanters within reach of the guests. After soup, the custom is either for a servant to go round the table saying, "Sherry, sir?"—or "ma'am"—and pouring from the decanter in his hand about two-thirds of a wine-glassful; or a gentleman seated next to a lady may offer to put sherry into her glass. This act is not to be associated with that of taking wine. Except with intimate friends, wine-taking is out of fashion. The host, if he wishes to enliven a silent member, or to put anyone on a particularly easy footing, may ask for the pleasure of taking a glass of wine with anyone. But visitors that are not intimate need not consider themselves under the obligation towards ladies. They are only expected to pour wine into a lady's glass, adding water if required.

During the courses of fish and soup, sherry is served, and hock, or similar kinds of wine, are taken with *entrées*. As soon as the "roast" is served, champagne should be drawn and supplied to the guests. Those who begin with champagne, if well experienced, generally drink no other wine with solid food. At the same time, claret is usually offered during the meat course, red wines being considered particularly suited as an accompaniment to such fare as venison, mutton, and beef. Light Rhenish wines are, on the same principle, in favour with light dishes; but the latter class of wines seldom agree with champagne, and people that are in the habit of dining much in society restrict their choice of wines to a very limited number. After ice has been served, small glasses of liqueur are handed round, containing maraschino, curaçoa, or brandy. Young ladies generally decline these stimulants.

At dessert, claret, Madeira, and sherry, and sometimes port, are placed opposite the host, who passes the bottles round in succession; the gentlemen, on this occasion, performing the office of filling the ladies' glasses nearest to them. Having been the round of the table, the bottles return to the host.

A word of suggestion may not be here out of place to caution unpractised diners at grand dinners from partaking of much wine at dessert. It is not considered uncourteous to decline wine at such times altogether; but if wine be taken it should be of a character resembling that which has constituted the principal beverage during the preceding portion of the repast. Thus a diner who has taken only champagne at dinner, with a little sherry after soup, will do wisely to take nothing but sherry or Madeira at dessert; whilst one who has made claret or Burgundy his principal draught will remain constant to the same class of wine throughout the meal. Some persons are so favoured with a good

digestion that no kind of mixture produces an ill effect; but these are exceptional cases.

Champagne, which is served only in England during the substantial courses, is in France regarded as essentially a dessert wine. It is customary to serve champagne iced; red wines should never be iced. Claret is in cold weather better for being a little warmed—simply placing the bottle on the mantelpiece of the dining-room for an hour or so is sufficient.

During the summer months the introduction of claret cup is becoming year by year a more general practice. When served, claret cup is offered at the same time as champagne. For the reasons already stated, guests do not usually partake of both beverages. Iced water should be offered to guests who decline all kinds of wine.

After dessert has been duly partaken of, the lady of the house, presiding at table, seeks to arrest the attention of the most honoured lady guest at table, and by a slight signal intimates that she is about to leave the dining-room. Thereupon the youngest gentleman at the table advances towards the door, and holds it open during the exit of the ladies to the drawing-room, the other gentlemen rising as the ladies leave the room.

Sufficient time for the enjoyment of wine having been allowed, a servant, by preconcerted arrangement, brings in coffee. The coffee should be strong, clear, and hot, poured into coffee-cups, but without sugar or milk. Having been served in the dining-room, the same service is performed in the drawing-room. Within about half an hour from having served coffee, tea is generally taken into the drawing-room in the same fashion; and in most houses notice of the fact is given to the master of the house, if still in the dining-room. This is the sign that those gentlemen who please are at liberty to join the ladies.

At exclusively gentlemen's dinners only is smoking allowed; and even then smoking should not be permitted in the dining-room itself.

Upon the conversational powers of the guests it depends in a great measure whether the most sumptuous and well-served repast be a success or a failure. Talking is at all times a more difficult accomplishment than the faculty of uttering merely words would lead one to suppose, and talking at a dinner-table is the most difficult of social acquirements. To know equally what to say, and how to say it, and whom to address, is the essence of good conversation, especially at table. The notion that to speak only to the lady whom you have conducted to table is as far removed from propriety as addressing the assembled company would be. Tact only can suggest when a remark is of a sufficiently general nature to be taken up by any of the company present, and the utmost circumspection is required to prevent what might only be thrown out as a passing observation being turned into an animated discussion between two individuals. Also it is the height of ill taste to engage the attention of the host and hostess in listening to long stories, when their minds are evidently bent on seeing to the general well-being of their company. Any approach to lengthy descriptions of purely personal adventure cannot fail to be out of place at a dinner-table, where the obvious business of the company is to consume, and not to listen. Good talkers, nevertheless, do excellent service when, during any delay in the appearance of the different courses, solemn silence threatens to cast a damp on the spirits of the guests, by starting some interesting subject for general comment. The purpose having been served, and the course of the dinner resumed, it is the duty of the guests to drop the subject started pleasantly, and subside into chatty small talk with their nearest neighbours.

In disposing of her guests at table, the hostess should bear in mind the suitability of her respective guests as neighbours during the repast. If two gentlemen of the same business or profession are invited, it is generally advisable to put them far enough apart to prevent their conversation from being too engrossing to each other, to the exclusion of their attention being devoted to the rest of the company.

The amusements provided for after dinner are seldom of a special character. Guests rarely stay long in the drawing-room after dinner, eleven o'clock being the hour at which dinner company generally disperses. It is not unusual, however, for a host and hostess to receive evening company after dinner by invitation. On such occasions music is a favourite amusement.

The style of dress worn at dinner-parties is, for gentlemen, strictly that of a black dress suit, with an open waistcoat and white neckerchief. With ladies greater latitude is allowed, according to their age and engagements after dinner. Thus, if a lady is invited to dine in company with a large party, and is not going elsewhere afterwards, she would simply wear a low-necked, short-sleeved dress, of not too elaborate a style; whilst if she intends going to a ball or concert after the dinner, she would attire herself suitably for such occasions. Gloves are never worn at dinner, although they are not removed till sitting down at table. Some gentlemen carry the punctilio of ceremonious visiting at dinner to the extent of carrying their hats with them into the drawing-room, leaving them to be brought by the servants afterwards into the hall; but the latter is not a general custom.

Further particulars about dinner-parties must be reserved for a future number.

DOMESTIC MEDICINE.—XLV.

LUMBAGO.

THIS is a very common complaint, and a very painful one. It consists of a pain in the muscles of the back, which may be dull and aching, or sharp and like a knife. It often comes on, as it were, suddenly, after or when a person has been stooping excessively or awkwardly. It is felt chiefly when the muscles are thrown into action by the patient trying to stoop, or to move about from place to place, or from side to side. When it comes on evidently in connection with an awkward or an excessive movement, it is always possible, and even probable, that it depends on what is called a "rick" or "wrench" of the back. In this case it would seem that the fibres of the muscles are either stretched or actually torn. But sometimes it comes on, without any accident of this kind, in a person slightly rheumatic. Often it will be found that he has got damp, or that he has been sitting with his loins exposed to a draught of cold air from the window of a house or a railway carriage. The pain may only be dull and aching, accompanied with stiffness, or it may be like a sharp knife, and every attempt at movement may make the patient scream out with pain. Generally, there is not much else wrong with him. The skin is cool, and the appetite not much affected. There may, however, be a little shivering, followed by rather high-coloured urine, a whitish tongue, and a slight heat of the skin. In other words, it seems sometimes to be a purely local matter, having its seat in the long thick muscles of the back, and at other times, to be a more general rheumatism affecting the system.

Treatment.—Now this would appear a fair case for a little domestic treatment. The case is very like what happens in stiff neck, and most people try to cure that without sending for a doctor, though they do not always succeed. However, there are some domestic measures that may be tried safely, and will often succeed. One very good thing is to warm a thick piece of strong brown paper, put it over the affected part of the back, and rub a hot iron, such as is used in ironing, over it; or a very hot poppy fomentation may be used, boiling four poppy-heads

in a quart of water, and wringing a flannel out of this as hot and dry as it can be handled; or a liniment may be rubbed into the part affected, such as the opium liniment of the "Pharmacopœia." If these measures do not relieve, a medical man must be called in, and even he may be puzzled a little to find out the remedy in the particular case: for what relieves one case will not relieve another. For the benefit of those at sea, or in places remote from medical advice, we append a prescription that will often help to remove the pain in cases where the urine is thick or high-coloured.

Bicarbonate of potash	...	...	1 drachm.
Tincture of henbane	...	...	1 drachm.
Spirits of nitre	...	...	2 drachms.
Water	... ...	...	8 ounces.

Mix. An eighth part to be taken every four hours.

The following powder, too, may be taken at bedtime—of course by a grown-up person—Dover's powder, six or eight grains.

If these measures do not give relief, two grains of quinine three times a day in a little moist sugar may be given.

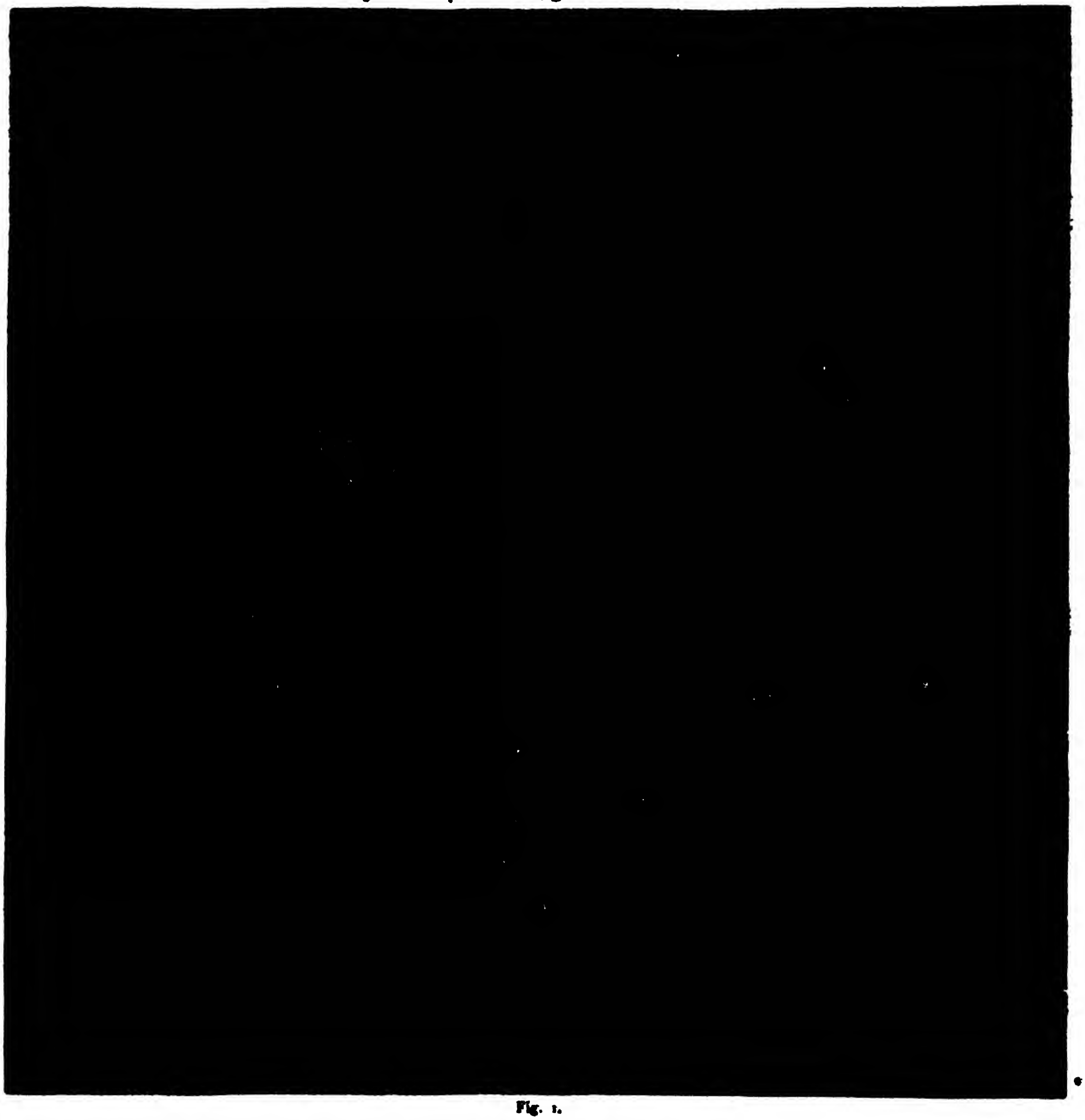


Fig. 1.

The diet should be light, and beer should not be taken. The bowels should be opened, but severe purging does no good. Many people are subject to attacks of this kind. For these it is no bad plan to protect the back, and keep it warm, by wearing a flannel belt or a good large warm plaister.

CROCHET.

Crochet, which was about a quarter of a century ago the fashionable work of the day, for some years fell out

of favour, and was considered old-fashioned and unworthy of accomplishment. It has, however, again attracted attention by being presented in a highly improved form. The design of our present illustration is one of a new-fashioned raised kind. Fig. 1 represents the antimacassar complete; Fig. 2 a single medallion.

GARLAND MEDALLION ANTIMACASSAR, IN RAISED CROCHET.

Nine medallions complete the antimacassar. Work easily, not very tight.

THE DOUBLE STOCKS.

Eight of these are required to form each garland. Make a ring of eight chain, and work into it twelve double crochet.

1st Round.—1 d.c. 3 chain; miss 1. Repeat 5 times more; 6 in all.

2nd Round.—Into the first loop work 1 d.c., and 5 tr. and 1 d.c. with 2 chain between every one of them. Repeat in each of the other 5 loops.

3rd Round.—1 d.c. between the two d.c. of last round, 4 chain. Repeat.

4th Round.—Precisely the same as 2nd.

5th Round.—The same as 3rd, but 5 chain instead of 4.

6th Round.—Precisely the same as 4th round.

When you have got to the third tr. in the last petal of the second stock; join it by 1 plain to the third petal of the last stock.

The stocks are all joined by a single petal each side in a straight row, leaving two petals free at the top and bottom of every stock. The last of the eight stocks is joined to the first, and thus makes a ring. Next work

THE ROSE.

This is made in the usual way, but with eight petals in every round. In case our readers do not happen to know the way, we subjoin full directions. Make a ring of 10 chain, and work into it 16 d.c.

1st Round.—1 d.c. 3 chain; miss 1. Repeat 7 times more.

2nd Round.—Into every one of the eight loops of 3 chain work 1 d.c; 5 tr. 1 d.c.

3rd Round.—1 d.c. between every 2 d.c. of last round, with 4 chain between each. Keep these chain at the back of the petals formed by the 2nd round.

4th Round.—Same as 2nd, but 7 tr. instead of 5.

5th Round.—Same as 3rd, but 5 chain instead of 4.

6th Round.—Same as 4th, but 9 tr. instead of 7.

7th Round.—Same as 5th, but 6 chain instead of 5.

8th Round.—Same as 6th, but 11 tr. instead of 9.

9th Round.—Same as 7th, but 7 chain instead of 6.

10th Round.—Same as 8th, but 13 tr. instead of 11.

This completes the rose. To join it to the garland, work

11th Round.—1 d.c. between the 2 d.c. of last row. Four chain, one plain into the centre of the first *under petal* of the first stock. Three chain, 1 d.c. on the centre stitch of the first petal of the rose. Three chain, 1 plain into the second under petal of the first stock. Four chain. Repeat till the 8 stocks are thus joined to the 8 petals of the rose.

THE BORDER OF THE MEDALLION.

1st Round.—1 d.c. into the d.c. that unites the first and second stocks together; make a guipure loop (that is, 8 chain, 1 plain back on the fifth to make a dot; again 8 chain, 1 plain back on the fifth to make a dot; 3 chain); d.c. into the centre of the first upper petal of the second stock; make a guipure loop; 1 d.c. into the centre of second upper petal of the second stock; make a guipure loop. Repeat all round.

2nd Round.—1 d.c. into the first guipure loop between the two dots; 10 chain, 1 d.c. into the centre of the next guipure loop; 7 chain, 1 more d.c. into the same place; 10 chain, 1 d.c. into the centre of the next guipure loop; 12 chain. Repeat all round.

TO JOIN THE MEDALLIONS.

Eight of the medallions are joined round one, which forms the centre. Every medallion is joined by two of the loops of seven chain, and the one loop of twelve chain between them. Thus:—In working the last row of the second medallion, "* 1 d.c. into first guipure loop between the two dots; 10 chain, 1 d.c. into the centre of the next loop between the two dots.*" Now, instead of continuing by working 7 chain, work 3 chain, *and one plain into the first loop of 7 chain of the first medallion;* 3 chain, 1 d.c. into the same place as the last d.c. Then instead of 12 chain, 6 chain, *1 plain into the first chain of 12 in the first medallion;* six chain, 1 d.c. into the next guipure loop of the *second* medallion, six chain, 1 d.c. into the next guipure loop of the second medallion. Then instead of 7 chain, 3 chain again, *and one plain into the second loop of 7 of the first medallion.* Finish the last row of the second medallion as you did the first one. Join all the medallions together in the same way; leaving two of the little points made by the 7 chain between them each side. Make them into a ring by joining the first to the last, as you have joined all the others together. Thus there are four chains of 7 united in each medallion, two to the centre and one at each side. The three loops of 12 chain between the 7 are also united.

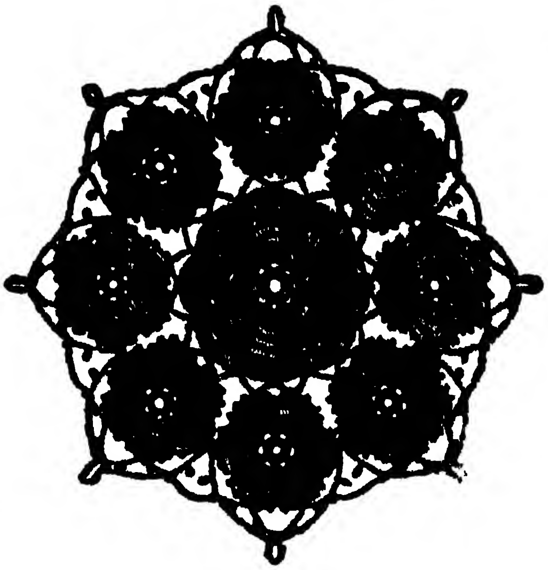


Fig. 2.

TO INSERT THE CENTRE OF ANTIMACASSAR.

Having united the eight medallions in a ring, take the ninth. Work into every loop of chain stitches a double crochet, and between each a guipure loop with two dots. Into every little point made by the 7 chain of a former row, work *two* double crochet with a guipure loop between like the others.

2nd Round.—1 d.c. into the first *double* loop of last round, 9 chain, 1 d.c. into the same loop, 12 chain 1 d.c. into the next guipure loop of last round between the two dots; 12 chain again, and 1 d.c. into the centre of the next guipure loop, 13 chain, one plain back on the eighth from the needle to make a loop of seven. Then 6 chain, 1 d.c. into the next guipure loop; 12 chain, 1 d.c. into the next guipure loop, 12 chain. Repeat.

3rd Round.—1 d.c. into the first double loop of last round, 9 chain, 1 d.c. into the same loop, 6 chain, 1 d.c in the next loop.

[N.B. The garlands of medallions are to be attached to the centre by the present row. Each garland is to be attached by the two little loops of 7 just over the two stocks of the garland of 8, and the loop of 12 between them.]

Make 6 chain. Then make 1 d.c. into the loop of 7, to be seen over the first of the two unattached stocks of the first medallion of the garland. Make 6 chain, and one plain back on the next loop of 12 *of the centre.* Again 6 chain. Make 1 d.c. into the loop of 10 chain between the two stocks of the medallion of the garland. Make 6 chain, 1 plain on the loop of 7 of the centre medallion, 1 plain into the 12 chain between the two loops of 10 chain between the two stocks of the centre medallion. Make 3 chain, and 1 plain back into the loop of seven of the centre medallion to make a loop; 6 chain, 1 d.c. on the next loop of 10 chain between the stocks Six chain, 1 d.c. on the next 12 chain of the centre. Six chain, 1 d.c. into the loop of 7 chain of the second stock of the same medallion of the garland. Six chain, 1 d.c. into the next 12 of the centre. Six chain. One medallion is now joined. Repeat from the commencement of the round, and join every medallion in a similar manner.

THE BORDER OF THE ANTIMACASSAR.

Make 1 d.c. between the points of seven chain, which join two garlands together. Make a guipure loop with two dots. Make a d.c. into every chain loop round the garland, and always take one between every place where two little loops of seven join two garlands. Make a guipure loop with two dots between every d.c.

2nd Round.—1 d.c. in every guipure loop between the dots. A guipure loop between every stitch.

3rd Round.—Like the second.

4th Round.—1 d.c. into every guipure loop, with 9 chain between each.

5th Round.—One treble crochet into every stitch.

The Fringe.—A great deal of the beauty of the antimacassar depends on the size of the cotton and needle used in working it. No. 12 is the only size which will render the pattern effectual. Much of the style of the antimacassar also depends on the fringe, which is not made with the same cotton. The rich effect is produced with only half the amount of labour by using the best beading cotton. Wind it over a book four inches wide; slip it off, double it, and cut one side. Fix two strands together in every other loop by pulling the doubled end through the crochet hook, and then slipping the cut ends through the loop thus produced. Pull the cut ends till the strands of cotton are tightly knotted to the antimacassar. Be sure the ends are even.

A BEAUTIFUL PINCUSHION.

From the same pattern work a garland of twelve double stocks, using No. 20 cotton and a No. 4 hook; also work a rose—both from the pattern of the antimacassar. Work one or two rows of the guipure loops with double dots round the rose till it is large enough to join the stocks to it. Beyond the stocks work as many rows of guipure as you used to join them to the rose. This is for the top of the cushion, which is to be made with a border. To do this, cut a round of calico large enough for the round top, and a strip which will be an inch wide when you have turned in the edges. Cut a round of cardboard for the bottom of the pincushion not quite so large as the top. Tack a piece of calico over this. Now sew the strip round it by one edge, and join it. Then sew on the top, fulling it in a little, but regularly, to give it the proper curve. Stuff the cushion very full with bran, and a piece of wadding full of scent near the top. Now cover the cushion with pale pink silk. Before sewing the top of the velvet cushion, add three rows, like the rows 1, 2, 3, round the centre medallion of the antimacassar, as a lace edge. Then tack it on the cushion. Make a garland of stocks to go all round the upright part of the border. Join these on one side by a straight row of chains, on which foundation work a lace border, such as you have at the top of the cushion. Then tack the stocks round the upright border, letting the lace project beyond flat on the table. The finer the cotton used for this cushion the better.

DEATH IN THE HOUSEHOLD.—I.

If there ever is a time when people find it painful to attend to any business, it is when oppressed with grief at the loss of some one who was both near and dear to them. This is especially the case when that business relates to the funeral of the one whom we have lost from earth for ever. At such a time the mourner, borne down with grief, is disinclined to go abroad to seek for any information on the subject of funeral arrangements, or to adopt any of those precautions that he would have taken to secure himself from imposition in his ordinary business transactions. The consequence is that he too often falls into the hands of persons who take advantage of his affliction.

If this is so often the case with a man, how much more often must it be so with the afflicted widow, who, being now deprived of her own and her children's support, besides being perhaps totally unfitted for business duties, is left among strangers, friendless and alone; and who, most likely, by incurring needless outlay in funeral expenses, deprives of their subsistence those who look to her—who is now their only friend—for food and shelter? The only means of guarding against this is to obtain in time sufficient knowledge of this subject, so that, if death should suddenly visit the household, it may not find the mourner unprepared. It is with the view of affording this, as well as all other information that may be required, that these papers are prepared.

When any person dies, it is necessary at once to register the death. The first thing to be done is to obtain from the medical gentleman who last attended the deceased a certificate of the cause of death. This is to be written on a printed form supplied for that purpose from the office of the Registrar-General, at Somerset House, London, and to be had from the local Registrar of Births and Deaths. This medical certificate—a copy of which we subjoin—states the full Christian name and surname of the deceased, his age last birthday, the date when last seen, and when he died, and also the cause of death.

As it is indispensable that the names and age of the deceased should be correctly given, it is advisable to write them down on paper, in a legible hand, and send it by the person who applies for the medical certificate.

MEDICAL CERTIFICATE OF THE CAUSE OF DEATH.

To the Registrar of the Sub-District in which the Death took place.

I hereby certify that I attended ____________________ *aged* ______ *last birthday; that I last saw h*___ *on* __________ 187__, *that* _*he died on* __________ *at* __________ *and that the cause of h*___ *death was*

	Cause of Death.	Time from attack till Death.
(a) First		
(b) Second		

____

Prof^l. Title† __________

Address __________

Date __________

* Each form of disease, or symptom, is reckoned from its commencement *till* Death.

† If this Certificate is not signed by a *qualified* Practitioner, the Registrar should write "not certified" in his Register after the cause of death; thus:—"Phthisis (six months)" *not certified.*

When the certificate is obtained, it is to be taken to the registrar of the sub-district in which the death took place, and information given to him of the deceased person's death.

The persons who are qualified to do this are—1st, some relative or other person present at the death; 2nd, some relative or other person in attendance during the last illness of the deceased; or, in default of all such persons, from death, illness, or other disability, then, 3rd, the occupier of the house or premises; or, if the occupier shall have been the person who shall have died, 4th, some inmate of the house in which the death shall have happened.

In addition to the cause of death, as mentioned therein, the informant must be prepared to state the date and place of death, the full name and surname of the deceased person, the correct age last birthday, and the rank, profession, or occupation of the deceased. If the deceased is a child, or an unmarried person without occupation, the full name and rank or profession of the father will be required; if a widow, those of the husband.

After the sub-registrar has entered all these particulars in the register, and the informant has signed his name, he fills up the following certificate:—

CERTIFICATE OF REGISTRY OF DEATH,
To be delivered up at the Funeral.

Pursuant to the Act 6 & 7 Will. IV., c. 86.

Registrar of Births and Deaths in the District of in the Count of do hereby certify, that the Death of was duly registered by me, on the day of , 187 . Witness my hand, this day of , 187 .

Registrar.

This certificate, when duly filled up and signed by the sub-registrar, is given by him to the informant. For doing this he is not entitled to make any charge, or receive any fee or reward.

This certificate is now to be delivered to the undertaker, or other person in charge of the funeral, who, in accordance with the 27th section of the Registration Act, must give it, at the time of the funeral, "to the minister or officiating person who shall be required to bury or to perform any religious service for the burial of the dead body—and to no other person."

As certificates of the death of deceased persons are often required for legal purposes, it will be useful to know that such certificates can be obtained at the General Register Office for Births, Deaths, and Marriages, Somerset House, London, W.C., on payment of the statutory fees.

Such certificate, by the Act 6 and 7 William IV., cap. 86, and sec. 38, "when sealed, or stamped with the seal of the General Register Office, is to be received as evidence of the death to which the same relates, without any further or other proof of the entry."

The fees required to be paid are—

	s.	d.
For a search in the indexes or register	1	0
Certificate	2	6
Inland Revenue stamp (23 Vict., cap 15)	0	1
	3	7

The general indexes are completed about nine months after the date of registration, but searches can be made in the registers not indexed, if the date and place of death can be correctly stated by the party who requires the certificate.

Different regulations are adopted by the various cemeteries, but they most generally agree in the following particulars:—

All orders for interments are to be given at the office of the cemetery company, and all fees and other charges are to be paid at the same time, the offices being usually open for this purpose every day, except Sunday, from ten to five; but on Saturdays the hours are generally from ten to two.

It is usually required by the directors of most cemeteries that notice shall be given and fees paid at least thirty-six hours previous to interment. When it is wished for the interment to take place on a Monday, this must generally be done early on the previous Friday. Some cemeteries, however, do not require so long a notice.

If a vault or a brick grave is required, four clear days' notice must be generally given. If this is not done, an extra charge will be made for working at night, and which must be paid when the order is given, and before the work is commenced.

It is also usually required that the name of the parish or ecclesiastical district, from which the body is to be removed, shall be mentioned at the time of giving the order for interment.

Certain hours are appointed during which interments are to take place, an extra fee being charged if the ceremony is performed at any other time. The hours at which the cemeteries are open for this purpose vary in different cases. Some open at nine and close at sunset; in others the hours are from about ten to half-past four or five. Many of them are open for interments during a few hours on Sundays, while others are closed on that day.

In common interments only wooden coffins are allowed to be used, while in catacombs, vaults, and brick graves, coffins of lead (not less than five and a half pounds to the foot) or stone must be employed.

Many of the cemetery companies very properly state that, with a view to reduce the interment expenses as much as possible, no gratuities are allowed to be taken by their officers.

BOOTS AND SHOES.—I.

FOOT-GEAR may be said to be an evidence of advanced civilisation, for savage and untutored people are totally unmindful of foot-clothing, although many of them adopt various coverings for other parts of their persons. From the times of the Egyptians and Ninevites up to our own, we find a continuous succession of improvements and cunning applications in the direction of foot-clothing, quite independent of what is ordinarily termed fashion.

The manufacture developed itself in two directions, one having for its object decoration, the other clever handicraft; and in our own time we find consistent and elaborate ornamentation combined with the best manufacture.

The perfection of workmanship in our own time is attributable to a greater application of mechanical skill, improved tools, chemical appliances, and, in the cheaper kinds of goods, to elaborate machinery and the division of labour.

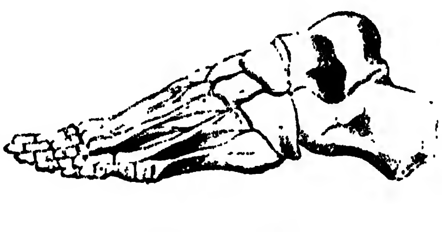
Although in Rome all modifications of foot-gear were prevalent, and in our own time we have no end of make and fashion; yet only two distinct species of foot-clothing have prevailed from the earliest ages to the present time. The two distinct species are the sandal and the boot. The former was universally adopted by the Egyptians, the Jews, and the Ninevites; the latter from the earliest times appears to have been the cherished foot-clothing of the Persians and the Medes. The older Greeks disdained foot-clothing, but the Romans monopolised not only the sandal of the Egyptian, but also the boot of the Persian, the art of making each of which they brought to the highest perfection. Not only this, they so modified the sandal that it became a shoe, and the boot, that it became a short boot, lace-boot, or ankle-jack. They

also appear to have introduced the idea of naming their inventions after certain celebrities then living. We have "Alcibiadean boots," and ladies' shoes which were named "Lyconian," "Cretan," "Milesian;" and the number of sorts varying from the sandal to the high boot were many—the *baxea*, *solea*, *crepida*, *soccus*, *calceus*, *femoralia*, and *cothurnus*, were all names to denote foot-gear having a greater or less height of upper leather from the sole.

In course of time the sandal died out, being only retained by hermits and monks, whose religious tendencies appear to have fostered a conservatism in dress.

It is not our intention to enter fully into the history of boots and shoes, but it will be interesting to trace the various materials of which the ancient foot-gear was composed. Leather appears to have been from the earliest times the chief material for foot-clothing.

Many of the earliest Egyptian sandals were made of plaited reeds, and that universally useful plant, the papyrus, not only served these ancient people for paper, for fans, and many other purposes, but with it they plaited a sole, which, when it had strings attached to it, formed a light as well as durable sandal. Hard walking would demand a more durable substance, hence wood was introduced; but, ultimately, leather became the prevailing material of manufacture, iron and brass being used in the Middle Ages by knights and warriors.



BONES OF THE FOOT.

Although wood is still retained as a material for soles in the Lancashire clog and the French *sabot*, we have little to say on a foot-garment of this kind, seeing that the intractable nature of the material affords but little opportunity for the maker to fashion his boot so as to meet the somewhat complicated motions of the bones and muscles of the foot.

It is the object of the present article to consider boots as adaptations to the human foot, and as a protection from injury, from cold, from damp; and, irrespective of the absolute fashion for the time being, to consider how far modern boots and shoes are adapted to our wants, or how far our comfort may be enhanced by a consideration of their adaptability to our feet.

It is presumed that while clothing generally should possess some little claim on our attention as being decorative, it should also be adapted to the body.

As the proper preservation and culture of the foot is of essential importance to those who have no wish to be half crippled in their advanced years, this subject must be referred to in a systematic way.

The principal places of action in the foot are in the direction of lines drawn from the lower joint of the little toe to the ball of the big toe, and from the front of the foot at the junction with the leg across the ankle to the back of the leg.

The other parts of the foot, as they are composed of bones which have but little power of action, need not occupy our attention. It will only be necessary to remark that upon a basis composed of long thin bones at the extremities, and wedge-shaped bones in the centre, is superimposed a diversity of muscles, tendons, veins, and nerves. Many of the muscles which move the foot are situated in the leg. Hence it is necessary to secure perfect freedom for the action of the tendons by not lacing a boot too tight at the top, nor by having the springs of the sides too tight; both of which, being in opposition to the actions of the tendons, will produce cramp, or total inability to move the toes.

Dr. Camper appears to have been the first who drew attention to the true form of the boot, as properly adjusted to the requirements of the foot. Soon after his suggestions, the Society for the Encouragement of Arts and Manufactures of France awarded a gold medal to a Parisian bootmaker for his improved forms of lasts, and since that time a certain amount of attention has been given by our best bootmakers in reference to the anatomy and physiological structure of the foot. Dr. Camper recommended the widening of the shoe in front; but it should be remarked that in his time extremely narrow toed shoes were in vogue.

As the greatest amount of action of the foot is in the toes, we shall endeavour to show the cogency of his remarks by a general description of the anatomy of the foot.

The accompanying illustration will enable us more readily to understand the subject.

The bones of the toes are similar in form to the fingers, their articulation or jointing is also similar: each finger has three separate and distinctly jointed bones, the thumb has two; so in the toes, there are three for the smaller, and two for the great toe, these are formed the same as the two of the thumb. The bones of the toes slant in towards the middle one, as will be more distinctly understood by reference to the diagram. They are proportionately much stronger, because they are subjected to a greater strain, for they sustain the force with which our bodies are pushed forward by the foot acting from behind at every step we make, and on them principally the weight of the body is supported when we raise ourselves on tiptoe. We may here remark that the broad part of the foot spreads considerably when this action takes place, and the space from the bottom of the small toe to the ball of the big toe consequently becomes considerably widened.

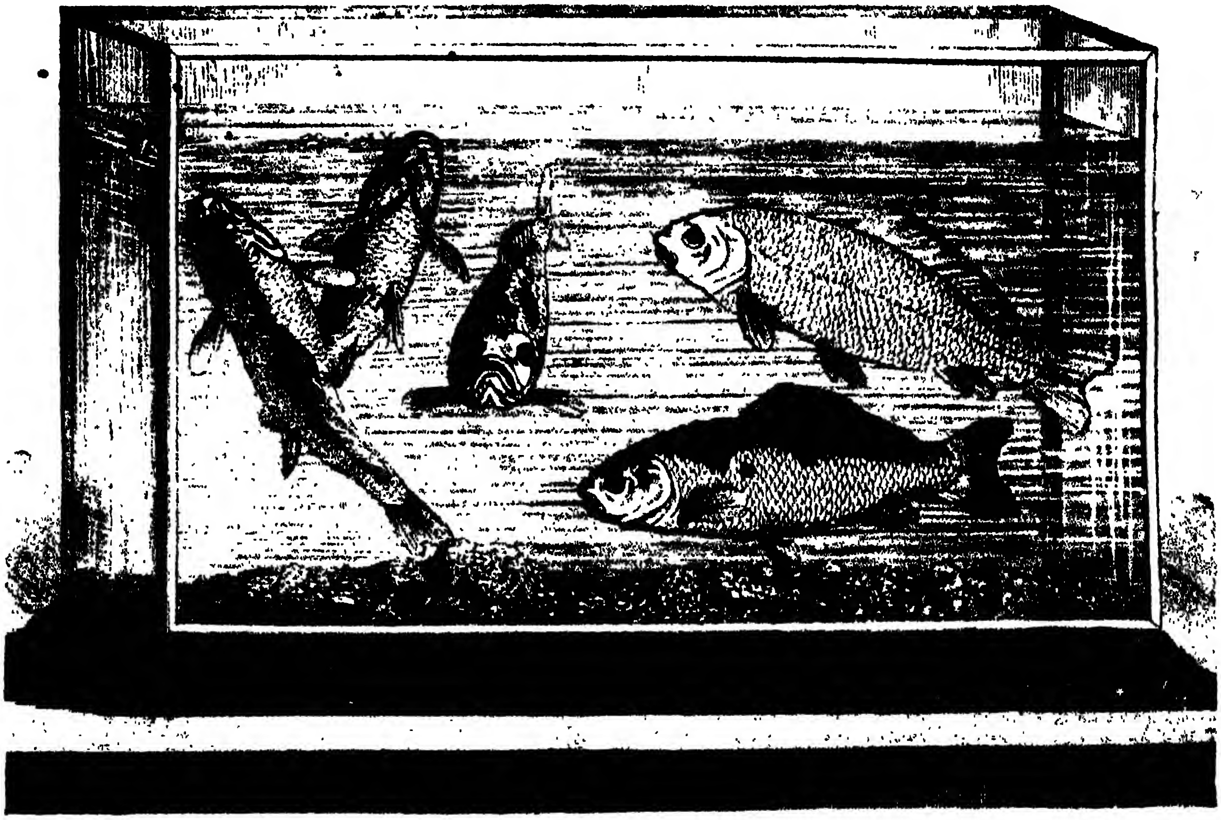
The three bones in each of the other four toes differ from those of the fingers in many particulars; they are smaller in proportion to their length, their parts nearest the body of the foot are much larger than the forward ends, the bone next the toe is proportionately much larger than the others, while the bones of the little toe are very small, and are very seldom made use of in walking or balancing the body. The little toe, and frequently the toe next it, has the bones intimately united and almost formed into one.

The bones which form the second part of the foot are of two kinds, the five forward ones being similar in shape to the bones of the toes, but they are kept together by the ligaments of the foot, and have not so much power of expansion. The others, which are called wedge bones, are irregular in form, and join to one another like a lot of stones just shaped so as to form a sort of connection with the heel, and to support and connect the two bones of the leg. These are kept up from the ground and supported by the heel bone, which is irregular in shape, with a projected rounded form where it touches the ground, and projecting considerably beyond the ankle, so that the bones of the leg join much towards the front, and the front of the bone of the leg comes nearly half-way between the termination of the heel and the front of the toe.

It will be noticed from the preceding remarks that the principal motions of the foot are the following: (1) a bending across the toes, extending from the ball of the great toe to the lower part of the small one; (2) a turning and bending motion of the ankle; (3) a spreading motion across the toes, from the ball of the big toe to the lower joint of the small toe; and (4) a spreading motion from the heel towards the toes, principally in the part called the "waist."

We shall conclude our description of the bones of the

foot by an account of the character of the lower bones of the leg. These are two in number, one much larger and stronger than the other, but both terminated by considerable protuberances familiarly called the ankle. On these the foot turns in one direction like a hinge, and is capable of being bent down until it makes almost a straight line with the leg, and also it has another motion which enables the foot to turn in or out; it must be noticed that the inner projection is slightly higher than the outer.



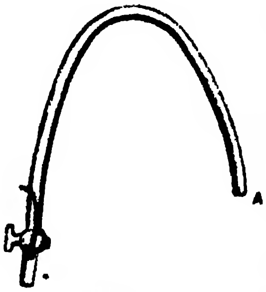
GOLD FISH.

THIS beautiful fish (*Cyprinus auratus*), belonging to the carp tribe, is the most brilliantly adorned of all our fresh-water fishes, and is scarcely surpassed even by the most richly ornamented inhabitant of the ocean. The gold fish is a native of China, though now domesticated, so to speak, in almost every country both of the Old and the New World; and it will even breed as freely in open water as the common carp. The young fish are of a blackish colour, and gradually acquire the fine golden red by which they are characterised; but there are some examples of a silvery hue, and called silver fish. Others are variegated with three distinct shades of red, black, and silver; some red and black only; some red and silver; some nearly black. The mixture of the black gives them a very rich and elegant appearance.

The golden carp (gold fish) is said to have been originally confined to a lake near the mountain Tsien-king, in the province The-kiang in China, and was first brought to England in 1691, but was very scarce until 1728, when a considerable number were imported, and they then soon became generally known.

They do not flourish in rivers and open ponds, not, however, because such places are uncongenial to them, but because they are exposed to many enemies against which they have no means of defending themselves.

The ordinary length of this species of *Cyprinus* is from four to six inches, but it is sometimes as much as twelve inches; and although these fish are natives of a warm climate, they can sustain a great deal of cold without injury, and even endure to be actually frozen up in the centre of the glass globe, to which accident one poor little fish is known to have been accidentally exposed during a severe frost, but as the ice thawed it recovered its vigour, and seemed to suffer no inconvenience or loss of health.



SYPHON.

In the present day the gold fish is a general favourite, and is to be seen in every aquarium and water used for ornamental purposes, whether surrounding a fountain or simply filling a park or a garden pond, where they live on friendly terms with the English carp and other small fish, gliding along in their golden beauty, and playing in and out among the water-lilies beneath the bright transparent water, their broad smooth scales reflecting the rays of the sun, and shooting rich sparks of light as they dart swiftly about, and when kept in a glass globe they especially acquire a degree of tameness and docility which is most pleasing; for they seem to know those who feed them, and even come to the top of the water when they approach.

The silver fish is about the same size as the gold fish, and resembles the carp in flavour. It is of a white colour, transversely striped with silvery lines, and is a native of the shores near the Cape of Good Hope.

Both gold and silver fish belong to the beautiful order *Cyprinus*, which received its name from Venus, the goddess of beauty, who was supposed by the ancients to have arisen from the sea in the neighbourhood of the Island of Cyprus, from which circumstance she is sometimes called Cypris by the poets.

The food for gold fish is fine bread-crumbs, small worms, flies, and the yolks of eggs dried and powdered, given once or twice a day.

If kept in a glass globe the water should be changed at least every other day, the fish being very carefully removed in a soft shallow bag attached to a wire and fixed to a small stick, which may be made as follows: —

Get half a yard of white bobbinet and a yard of stout bonnet-wire or copper wire; cut out a round piece of net about the size of a cheeseplate or larger; join a piece of the wire in a circle, the size of a breakfast saucer; twist the ends of the wire firmly together, and fix to the end of a small piece of cane. Sew on the net like a shallow bag.

The fish must be very carefully caught; the bag very gently put into the water, to avoid causing alarm, and the fish allowed to float quietly into the bag. When in, the bag must be slowly raised, and as slowly carried to a basin of water, which must be ready close at hand to receive the fish.

Gently place the net or bag in the basin of water—which must be large and deep—and allow the fish to float out of it, and until it so floats out the bag must be quietly held *quite still*. Sometimes the little creature is much frightened by its removal, and plunges in the bag; but if gently raised it soon becomes composed. If it *does* struggle, hasten its arrival to the basin of water, for no quick movement will then increase its fears, and the sooner it is safely in the basin the better.

If a large globe, the water must now be carefully taken out in small quantities with a cup or basin; the globe must not be lifted full of water and the water poured out, as the weight of the water may break the glass; besides, it would be too heavy for a lady to lift. When the water is all removed, the globe must be rinsed, and then rubbed dry with a soft linen cloth to remove all sediment caused by the water; and then again filled with clear soft or rain water, and the fish replaced in the same manner in which it was taken out.

If the globe to contain gold fish is of a very large size, it is a good plan to take out the water, for the purpose of changing it, with a syphon, like that in the illustration. The short end, A, is inserted into the water, and the end with the tap is to rest over a pail, into which the water from the globe or aquarium must be allowed to run. By this plan the fish and other animals have no occasion to be removed; a part only of the water is to be drawn off, and fresh water added; and by attention every day, or every alternate day, the water will be kept fresh.

A little gravel and rockwork with grass and water-plants at the bottom of the globe, is a great improvement to the fish's home; besides, it adds to the appearance of the water, and is a prettier habitation than some of the dark unsightly aquariums.

Ferns may surround the globe to soften the light. True, their inhabitants love darkness, at least some of them, but when made to be ornamental rather than for scientific purposes, an aquarium should be allowed all possible latitude of grace and beauty, without depriving its inhabitants of every comfort that can be afforded under circumstances so truly disadvantageous to their happiness and liberty. In globes and aquariums let the comfort of the poor little prisoners be the first consideration.

COOKERY.—LXIII.

STORE SAUCES (*continued from p. 254*).

Kitchen Spice will be found useful for seasoning and soups. Take three-quarters of an ounce each of ground allspice, black pepper, and nutmeg, one ounce and a half of ground ginger, one dozen cloves in powder, and nine ounces of salt. Mix in a mortar, and keep it closely stopped.

Vinegar may be economically made at home. In some country districts, persons keep in a place where the temperature is mild and even *a vinegar cask*, into which they pour any spoiled or sour wine, and it is to be always kept filled up by replacing the wine you draw off by new wine. To establish this household manufacture it is only necessary to provide at first a small cask of good vinegar. Raisin vinegar is excellent. Lay in a tub the raisins, stalks, &c., from which wine has been made, and let them heat three or four days; add two gallons of water to every fourteen pounds of raisins; beat the mash, and stir it often during eight-and-forty hours. Then strain and press the raisins, and put the liquor into a barrel, with a little yeast, to work. When the fermentation is over, cover the bunghole with a piece of tile or slate, and set it in a warm place until the vinegar is perfect. Then set it in a cool place, and if it be not clear, mix with it a solution of isinglass, and after a time the vinegar will be clear and bright, and may be bunged down.

For *Malt Vinegar*, pour on half a bushel of ground malt five gallons of hot water; mash it well, and after the usual time draw off the wort as in brewing: work it with yeast, and in thirty-six hours rack it into a cask, and place a piece of slate over the bunghole; set it in a sunny place, outdoors, in the summer, or in a warm place, indoors, in winter. The refuse of raisin wine, or a quantity of low-priced raisins, if put into the cask late in the process, will improve the flavour of this vinegar. In large works the vinegar is passed through beds of raisin stalks or marc, which, from their age, give the vinegar a rich, vinous flavour.

Fruit Vinegar may be made from the pulp and husks of fruit which has been used for wine. They are infused in hot water; the liquor is then strained, and to every gallon is added a pound of strong coarse sugar and a tablespoonful of yeast; work four or five days, then rack into a cask, and let it stand with a tile on the bunghole for ten or twelve months, when bung up or bottle.

To Strengthen Vinegar, expose it to the cold of a very frosty night; next morning ice will be found on it, which, if thawed, will become pure water. The vinegar being freed from so much water will consequently be more acid than before, and may thus be frozen again and again until it becomes of the desired strength.

To Prepare Verjuice.—Press unripe grapes or gooseberries, and strain the juice through a linen cloth; bottle it and expose it uncorked to the sun for six or seven days. The liquor will ferment, and the bottles must be filled up every morning. When the fermentation has ceased, decant the verjuice into other bottles, cork them, and store them for use. Gooseberry verjuice is much used in France; when mixed with sugar, it is coloured and sold as *sirop de groseilles*—syrup of currants.

Syrup of Currants.—Take two pounds of red currants nearly ripe, one pound of ripe cherries, and half a pound of raspberries; remove the stones from the cherries; crush the whole together, and when well mixed leave the fruit in a pan for twenty-four hours. Then put the whole into a hair sieve, over which place a well-rinsed napkin, and strain the juice through it without pressure. To each pint of juice put two pounds of loaf sugar, pour it into a preserving-pan, and set it on the fire. After the third or fourth boiling, take the syrup off the fire, skim it, and pour it into a pan or jug, and when cold, put it into

small bottles. The syrup of plain currants is sometimes preferred to the above; or the raspberries are omitted, and the syrup is made with the same quantities of currants, cherries, and sugar as above. A little of the above, poured into water, makes a delicious summer drink.

Raspberry Vinegar.—Fill a stone jar with ripe raspberries, cover them with vinegar, and let them infuse a week; then pour them into a sieve, crush the fruit, and strain the juice, to each pound of which add two pounds of loaf sugar coarsely powdered. Put the whole in a stone bottle corked closely, and set it in a stewpan of water over a slow fire. As soon as the sugar is thoroughly dissolved take off the pan, and when the vinegar is almost cold, bottle it.

Artificial Essences of pears, pine-apples, and other fruits are now prepared in great variety. In the concentrated form the smell is rather acrid; but when diluted, the resemblance to the fruit is recognised. The best imitations are the pine-apple and jargonelle pear; the greengage, apricot, black currant, and mulberry, when properly mixed, are fairly imitated. They are harmless in the proportions used—a drop and a half to the ounce. The cheap ices are flavoured with these essences, and "pine-apple rum" and "pine-apple ale" is thus flavoured. Oil of grapes and oil of cognac, used to impart the flavour of French cognac to British brandy, are little else than fusel oil; and the artificial oil of bitter almonds is used for flavouring confectionery. It is employed to make the "genuine noyeau," and to give a fine flavour to custards, cakes, &c. The leaves of peach, nectarine, and apricot trees, as well as the kernels of the fruit, give a noyeau flavour by infusion in water or spirits, but their use is dangerous. The effects are similar to those of laurel-water, bitter-almond water, essential oil of almonds, which destroy life, from the prussic acid which they contain. If these "flavourings" are kept in the house, they should be locked up and labelled "poison," for children have been poisoned by drinking them.

ODDS AND ENDS.

On the Management of a Watch.—Always wind up a watch at the same time every day, and be very careful that no dirt is contained in the barrel of the key, and that it is in good order. A watch should be continually in the same position, and when carried in the pocket by day, should always be hung up at night. When you regulate a watch, as you move the regulator towards the parts marked "fast" or "slow," take care that you do not move it too much at a time; it is better to move it a little every day, until the watch goes right, than to move it too much at once. Also be careful that no dirt is contained in your watch-pocket, otherwise it may gain admission into the inside of the watch and impair its action. It is advisable, when wearing a watch, to keep it in a soft wash-leather bag made for that purpose, by which means the watch is prevented from being scratched or injured by friction against the rough lining of the pocket. When the keyholes for winding and setting a watch are situated at the back of the case, never open the front, since by doing so you may not only admit dirt and moisture, but also may dislodge the glass, and perhaps break it. If your watch is a chronometer, or has a duplex movement, when setting it to the correct time, always remember to move the hands forwards, and never backwards. Although this is not of so much importance in watches of other construction, yet it is advisable to do it in all cases. Lastly, care should be taken to keep a watch always as nearly as possible at the same temperature, otherwise it will never keep correct time.

Incombustible Dresses.—Ladies' dresses, even of the lightest and most inflammable nature, may be rendered almost completely fire-proof by being dipped in a solution of the chloride of zinc. When they are thus treated, it will be found to be impossible to make them blaze by contact with flame.

Why Bog Oak is Black.—Bog oak, of which ornaments and articles of vertu are sometimes made, derives its black colour from a small quantity of iron contained in the water of the bog in which it has been immersed, acting on the gallic and tannic acids contained in the wood, the combination of the two producing a black dye of a similar nature to ink.

To Revive Old Writing.—Boil a few gall nuts in white wine, then with a sponge, dipped in the liquid, wipe gently over the lines of the old writing, and all the letters will again appear distinctly visible. This preparation should not be used for documents the originals of which it is necessary to preserve, as it has a tendency to destroy the paper; but it will be found very useful for writings that it is requisite to copy.

To Prevent Fishing-lines Rotting.—Never wind your lines on your reel wet; but, when you get home, wrap them round the back of a chair, and let them be thoroughly dried, otherwise they will soon rot, and cannot be depended on. With this care they will last a considerable time. To preserve fishing-rods, oil them in summer with linseed oil, drying them in the sun, and taking care the parts lie flat; they should be often turned to prevent them warping. This will render them tough, and prevent their being worm-eaten; in time they will acquire a beautiful brown colour. Should they get wet, which swells the wood, and makes it fast in the sockets, turn the part round over the flame of a candle a short time, and it will be easily set at liberty.

Sympathetic Inks for Post Cards.—If a weak solution of sulphuric acid (oil of vitriol) is used in writing, it will be invisible when dry, and will remain so until the card is held before the fire, when the letters will become of a brownish black, and may be easily read. The cause of this is, that dilute sulphuric acid has no action on paper; but when exposed to heat, some of the water it contains being driven off, the acid, becoming more concentrated, at once chars the paper, and renders the writing visible. Another way is to write with a colourless solution of sulphate of iron (green copperas), or sulphate of copper (blue copperas). When dry, this writing will also be invisible, but will at once appear when dipped in a solution of the ferrocyanide of potassium (prussiate of potash). In the case of the iron the writing will assume a blue appearance, and in that of the copper a brown. Another method consists in writing with a colourless solution of the nitrate of lead; when dry, nothing can be seen on the card, but if it is exposed to the vapour from a little hydrosulphurate of ammonia, the lines traced at once turn a deep black, from the formation of the sulphuret of lead.

About Fruit, and when to Sweeten a Pie.—The presence of sugar and certain vegetable acids is the principal characteristic of most fruits. The nature of the sugar thus contained varies in different fruits, according to the quantity of acid entering into their composition. When a quantity of acid is present, then the sugar is of that kind called glucose, grape sugar, or sugar of fruits; but when the acid is absent, the sugar is of the ordinary kind, known as cane sugar. The quantity of sugar contained in fruit varies much, and depends chiefly upon the heat of the sun. Hence we find in dull seasons but little sugar, and the fruit is therefore sour to the taste; the sugar being formed by the action of the sun's heat and light (aided by some ferment contained in the fruit) out of the starch always present in it. The fact that cane sugar is readily converted into glucose by heat and acids, is one of considerable importance to all engaged in cooking, because cane sugar sweetens food to a much greater extent than glucose. It should therefore be

remembered in making pies not to put the sugar into the fruit before it is baked—otherwise the heat and acid will convert it into glucose, in which state it will not go so far—but to add it immediately before use.

HEALTH AND COMFORT IN THE SLEEPING-ROOMS.—I.

THE notion that feather beds are unhealthy and mattresses healthy is as erroneous as many other notions. A feather bed is only unhealthy when the sleeper finds himself too warm in it. Many persons find them objectionable for this reason in summer, but there are many others who do not, and there are constitutions to which during the cold winter months the warmth of feathers is almost necessary. A feather bed is a greater luxury than a mattress, and perhaps for this reason it is as well not to bring children up to use them, considering that the fewer luxuries you accustom your children to expect, the better they will get through life. In farmhouses feathers are easily obtained, and used, because they can be had free of cost, which is an excellent reason. Nothing is more uncomfortable to lie upon than an ill-kept feather bed. Beds need care and good shaking. We have previously (page 286, vol. 1) described how to make and cleanse them. Cover the tick with a case made of unbleached calico, which can be more readily removed to wash than the tick itself, and which preserves it. Mark this in ink. Feather beds require a great deal of good hearty shaking. It is excellent exercise, and promotes the health and spirits; but it is a remarkable fact that few servants are to be found in the present day willing to shake a feather bed. They just push or wriggle it about a little, languidly, as if they were too weak, or too tight-laced to use their arms, and modern ladies too frequently appear afraid to put a hand to anything.

A bed should be well shaken as violently as possible by the four corners alternately, and the two sides of the centre; shake it again and again. Turn it and repeat the process. Then feel for any knots of feathers in the middle, and separate them with the hands. It is only when anyone is suffering from heart disease or weakness of the heart consequent on debility that bed shaking will not do them good. This may be known by excessive palpitation or faintness. On rising, strip the bed. Do not lay the clothes back over the footboard, but remove them on one or two chairs. Otherwise the bed will be short at the feet and uncomfortable. Shake the bolsters and pillows. Shake and turn the bed, and then turn it back over the footboard to air between the bed and mattress. Let it lie so an hour or more. Then lay it fit for covering, and leave it another hour to rise.

Some advocates for excessive neatness have the beds made up immediately they are vacated. It is not healthy. They need to air for a couple of hours. Open the windows at top and bottom—not at one end only—as wide as possible, and set open the door also, by means of a weight or a chair. Unless there is a thorough draught there is no true ventilation of a sleeping-room. Half an hour is the least time the door also should be open. The window should remain open till half an hour before dusk, except in very sultry weather, when it may remain open altogether. The only exception to this rule is during high winds, when the door cannot safely remain open, and in very wet and foggy weather. The window can then be opened a little at top and bottom for a short time, as it is not good to admit a very humid atmosphere. In fine summer weather it does a feather bed good to lie all day on a lawn once in awhile, or half out of window across the sill.

To make a bed properly be sure to wash the hands clean first. Having shaken and aired the bed, and laid it as square as possible, with the feathers even to all the corners, but a slight rise in the centre, place on a blanket first. Some persons dispense with an under blanket. This should never be done, as it is not wholesome. The perspiration from the body, without such a protection, is unduly absorbed by the feathers. Next lay on the bolster, above this the sheet, and cover the bolster with it. Tuck in the sheet at the sides, but be sure not to diminish the size of the bed. Also slip it under at the foot by raising the two corners and passing the sheet under, being sure not to shorten the bed in the least, or to tuck in the corners.

These are the next most important items after well shaking. Observe the same rule with every piece of the clothing. Put on the pillows lightly; lay on the sheets and blankets one at a time, lightly, and tuck each in separately. Never throw them in a lump on the centre to depress the bed. Lastly, place on the counterpane. This is not tucked in. If the bed is not sufficiently raised you may now push it up to the centre from each side, and pull the ends of the counterpane even. If it is raised enough, merely press up the sides with the hands like a deep border, and then pull down the counterpane straight. The counterpane should entirely cover the bolster, and if there are any curtains they should be folded and laid across at the head. Before bedtime the curtains should be drawn and the sheet turned over the counterpane ready for use. The more like a pincushion a bed looks the better it is considered to be made. The bed should always be as long and wide as the bedstead, coming well down to the footboard, and not sloping away too much at the feet, which is a common error in bed-making.

The good old rule used to be, make a bed raised in the centre for one person, and as flat and square as possible for two. A bed made "pincushion shape," if it is to be occupied by two sleepers, should be depressed in the centre and the feathers equalised before using it at night, otherwise all the best feathers remain in the centre. When two feather beds are placed on one bedstead, as sometimes happens, the upper one should be completely removed every day and the under one well shaken. If a mattress is placed on a bed it should also be removed and the bed daily shaken, for if the feathers are allowed to knot together the bed will be spoiled. The very best feather bed which can be bought, if neglected, will become as hard or harder than the commonest flock, and be as unpleasant to sleep upon as a sack stuffed with cotton-reels. Mattresses and palliasses should be brushed at least once a month, removed from the bedstead, and the bedstead dusted.

Upholsterers' beds of a good quality will be found to require much more shaking than home-made beds. It is a good plan to slip an old, soft, washed tick loose over the real tick of the pillow-cases, or to put two slips upon them to keep them clean, now that nightcaps are rarely worn. All feather beds, and also mattresses, require occasionally to be unpicked, and the feathers or wool and ticks cleaned. Pillows need this oftener than beds. Sleeping on pillows which need the feathers cleaned is said to cause drowsiness in the morning, from an exhalation of a narcotic kind from the oil they have absorbed, and which fills out the stalks of the feathers again that have been dried before being used.

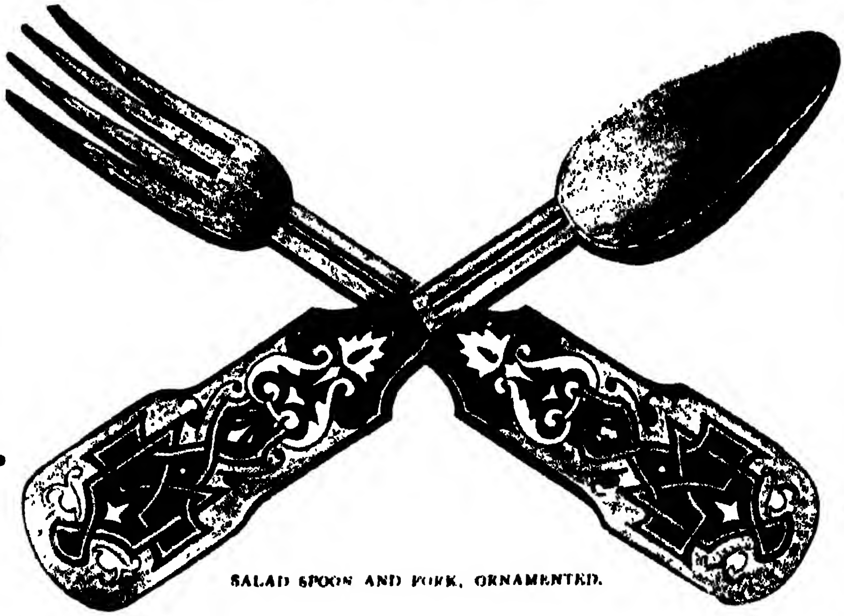
Bed curtains are necessary or not according as a sleeping-room is draughty or otherwise. If used it should only be across the head of the bed, never at the foot, or so as to enclose the sleeper in confined air. Many rooms require them to save the occupiers from ear and tooth aches, stiff necks, and colds, &c. Very often it is sufficient to drape the window, and unless unmistakably needful, the bed itself is better without. It is always well that the light should be partly shaded, either by curtains or a green window blind. A strong glare of white light falling on a sleeping person or child is apt to render the eyes weak.

WATER-COLOUR DRAWING ON WOOD.

ENGLAND is universally acknowledged to be the fatherland of water-colour drawing; but, inventors and patrons of this art though we be, we have left to our neighbours on the Continent the credit of applying it to household purposes—domesticating it, as it were. It is a principle with us to hide from sight every possible piece of plain wood; whether it be the floor with a carpet, or a toilette-box with chintz and lace. They, on the contrary, inlay with various coloured woods in fancy patterns the former; and the latter, if the polished grain of the wood be not sufficiently attractive, is ornamented with designs in water-colours, or tinted in sepia, and then polished. Articles of the toilette are either bought in this state, or (which is far preferable, as we want to inculcate in the present paper) are painted at home, and thus afford "amusement and instruction hand in hand." For we contend that the education of the artistic feelings and taste cannot be too earnestly cultivated; and such occupation as that under our notice, by affording unlimited scope to individual taste and design, cannot fail to be most beneficial. The application of this mode of ornamentation is almost universal, from a card-table to a pen-holder; but we shall give occasional illustrations and explanations of subjects that may with the greatest ease and effect be treated in this way. Before describing the accompanying illustration, we proceed to give some general hints as to the *modus operandi*. The wood chosen for colouring should be of as hard a quality with as little grain as possible; the former to reduce to a minimum the probability of the colour running, which, however, it will do under any circumstances if laid on too moist; and the grain, if prominent and handsome, destroying the effect of artificial ornament, Nature being in that as in everything else unapproachable. The best surfaces are those of white maple (not the curled or bird's-eye), linden-wood, and boxwood. A very little practice will suffice to impart a correct judgment of suitable woods; but by taking pains any surface can be made to answer the purpose.

We give here a suitable subject for the style of art in a salad-spoon and fork, of which the parts painted are made of maple, the remainder of plumtree-wood. The two parts are usually made to unscrew for convenience of washing. The design is first drawn in outline with a good pencil, but not so as to injure the surface of the wood, which must not be polished; the spaces left light, and then carefully filled in with the best cake-white rubbed fine, and the black portions done in the same manner with Indian ink; while the shaded lines are tinted with sepia. The remaining portion is either left the colour of the wood, or, in the case of a decided grain, is coloured with a warm grey. When thoroughly dry the pencil lines are gone over with a fine mathematical-pen and Indian ink. Should it be found necessary to go over the black portion a second time, it should be done before these final lines are drawn, as they give a finish and decisiveness to the outlines not otherwise attainable. The last, but not least, part of the business now remains, namely, the polishing of the surface that has been coloured. Few, if any, amateurs are equal to this; and as the stability of the colour depends mainly on its being done thoroughly well to resist the action of the moisture, we should recommend that especial attention be paid to our remarks on varnishing given under the head "Household Mechanic."

The polished surface may be cleaned by freely wiping it with a damp cloth, and will sustain no damage therefrom, provided always that it be thoroughly dried and repolished with a dry one, or piece of wash-leather. Although we should advise beginners to follow the pattern given herewith in their first attempt, less formal ornamentation may advantageously be substituted on future occasions, such as a bouquet of flowers, a wreath, or rustic scene, &c., as the fancy of each may dictate.


SALAD SPOON AND FORK, ORNAMENTED.

Another illustation of this pleasing form of ornamentation, which we shall give in a future number, will show its adaptation to articles of furniture; and indeed its application may be considerably extended, according to the ability and taste of the designer. It is almost a new art in England, but deserves cultivation.

DINNER-PARTIES.—III.

BEFORE quitting the subject of formal dinners, it may not be out of place to offer some explanation of the terms commonly used in French cookery. By an affectation of refinement, the *menu*, or bill of fare, which it is now customary to place opposite guests at English dinner-tables, is almost invariably compiled in the French language. Many of the dishes might be equally well described in our native tongue, without any detriment to their excellence; and of late years, to the honour of some English persons in high position, the above error has been corrected, at their suggestion, on several occasions when most distinguished company has been received.

The following are some of the terms in most general use:—

Aspic means a savoury jelly used for garnishing cold game, pies, &c. Sometimes a fowl, or dish of cold fish, is enveloped in *aspic*, the transparency of the jelly enabling the viand to be plainly seen.

Béchamel.—A rich white sauce, in which savoury herbs, cream, and veal stock figure largely.

Compote.—Stewed meat or fruit, as *pigeons en compote*, *compote* of apples, &c.

Consommé.—A rich stock or gravy, as *consommé de volaille*—*i.e.*, made of fowls or game. Plain *consommé* is "stock."

Croquettes.—Small balls of fried rice, potatoes, fish, or poultry.

Côtelettes.—Cutlets of fish, fowl, or meat. *Côtelettes en papillotes* are cutlets cooked in paper containing savoury herbs, piquant sauce, &c.

Escalopes.—Collops.

Matelote.—A stew composed of fish and wine sauce.

Marinade.—A mixture of oil, vinegar, savoury herbs, &c., in which articles to be afterwards stewed or broiled are previously soaked.

Piqué.—Carded.

Purée.—Vegetables boiled to a pulp and passed through a sieve.

Potage.—Vegetable soup, or plain broth.

Quenelles.—Finely-minced veal, game, fowl, &c., force-meat balls.

Ragoût.—Stew, or hash.

Salmi.—A hash of meat or game previously roasted.

Sauté.—Meat or poultry lightly browned in a stewpan, with a rich gravy.

Souchée.—Water sauce, in which savoury herbs and white meat have been lightly boiled.

Hâtelets.—Plated skewers garnished with vegetables; also skewers on which larks, ortolans, and similar small birds, are served.

A la Tartare.—Highly seasoned with pepper, curry powder, &c.

A la Maître d'Hôtel.—Broiled fish or meat buttered whilst hot, with the addition of finely-chopped parsley or sweet herbs.

A la Indienne.—Flavoured strongly with curry powder.

Grillé.—Broiled.

Frite.—Fried.

A l'Eau.—Plain boiled.

Gelée.—Jelly.

Glacé.—Iced.

Entrées.—Made dishes served with the first course.

Hors d'Œuvres.—Savoury trifles or relishes, as anchovies, sardines, served during the first course.

Pièce de Résistance.—The roast or principal joint, as sirloin, round of beef, saddle, haunch of mutton, &c.

Entremets.—Small dishes served with the second course.

Relevés.—Removes, in place of the principal joints.

We have remarked that most recently a decided tendency has been apparent in the best English society to adopt a more simple mode of entertainment than has for a considerable time prevailed. Gradually it is beginning to dawn on the leaders of fashion that the best English cookery is by no means inferior to some of the productions of foreign cooks. In point of expensiveness—a very material consideration in the eyes of many—a thoroughly good English dinner may vie with the most elaborate bill of fare composed for the greater part of morsels with high-sounding names. Our real or mock turtle soup, saddle of Southdown mutton, sirloin of Scotch beef, fat capons, choice game, and finely-grown vegetables, are inferior to no class of living throughout the civilised world. What English cookery really does require is skill on the part of cooks, to send up their productions in perfection to table. Whilst nothing is more enjoyable than a well-roasted joint, hot and cleanly served, few kinds of food are equally unsatisfactory, if wanting in these attributes. Conscious of the genuine excellence of our national dishes, in many of the best Continental establishments the owners keep English servants exclusively to attend to the roasting of meat, and plain boiling of vegetables. Perhaps, when the above facts become more generally known, English housewives will take heart of grace, and no longer apologise to strangers for offering them a simple English repast. The attempt to give foreigners and others, who keep professed cooks, badly-made *entrées*, is very like sending coals to Newcastle. The labour is not appreciated; regrets are felt for the host's well-intentioned efforts, but the failure is none the less great.

Supposing, therefore, that it is the intention of an English host to set before his friends national fare, let us consider what are the requisites. In the first place, due notice should be given by invitation, fully as long as that which it is usual to issue for a more pretentious repast. This is chiefly necessary on two accounts—firstly, because the success of a dinner is mainly dependent on the congenial spirits of the guests—and in these busy times it is sometimes not easy to bring desirable people together; secondly, in order to secure the viands being in good condition for cooking. Whether venison, beef, or mutton be in question, all joints require to be kept, or "hung," more or less time, according to the season. This is best done at home, the housekeeper having previously been aided by the butcher in the selection of the choicest kinds of meat. Some kinds of poultry—turkey, for instance—are wonderfully improved in flavour by being hung; and for all game the process is necessary. In addition there are numberless minor matters which claim attention, where dinner-giving is not a frequent practice. These details, trivial though they may be in themselves, all tend to *completeness*, the principal charm of a dinner-table; and, by being disposed of previously, set the host and hostess free from hurry and embarrassment at the last moment. Having taken all precautions to have everything in order, the entertainers may be expected to enter freely into the enjoyment of the scene—a pleasure too often denied them when a party has been hurriedly assembled, without sufficient appliances at hand.

When every order has been given, and due provision made, the successful carrying out of the scheme depends on punctuality. The punctual attendance of guests at dinner is a matter of sheer duty. Everyone's comfort, and a large pecuniary outlay on the part of the entertainer, are at stake when unpunctual people are concerned. It is generally understood that half an hour after the time of meeting stated on the card of invitation is the precise time at which dinner is supposed to be served. Thus an invitation for dinner at half-past seven o'clock signifies that dinner will be served at eight, and it should be a point of honour for all guests to assemble during the above interval.

By some inconceivable notions of hospitality, orders are sometimes given to the cook to "put the fish down" immediately on the arrival of the last expected guest. What is the result? One unfortunate individual not only suffices to keep all the rest of the company waiting, but causes all the viands to be overdone. Were it a mere question of cooking a dish of fish, the inconvenience would not be great, but when the serving of several courses is in question, the necessity for keeping exact time is tenfold greater. People that are very particular in their habits of punctuality sometimes affix the letters "P. B. P." (please be punctual) on cards of invitation to dinner. If after a similar warning the request is disregarded, it is an act of discourtesy to any guests that may be assembled at the proper time, to tarry for those who fail in their appointment.

The order of guests going in to dinner is the same in general society—namely, the lady of the house, or her representative, takes the head of the table, and the master of the house the foot. The most distinguished lady of the company is conducted to the table by the master, and

is placed on his right hand, having on his left the lady next in distinction. The same rule is observed with regard to the lady of the house. The two gentlemen it is designed to honour most are placed on her right and left hand.

During the interval that elapses between the assembling of the company and going to table, the hostess quietly designates to the gentlemen guests the ladies whom she wishes them to conduct to the dining-room. If it should happen that the guests are strangers to each other, an introduction from the hostess is necessary. When dinner is announced, the host should rise and offer his arm to the lady he is to lead to the dining-room, and the rest of the company follow his example. The last to leave the drawing-room are the hostess and the gentleman who escorts her. The reason is obvious: it is the duty of the lady of the house to see all her visitors on their way to the dining-room before she leaves the drawing-room herself.

As we have before remarked, it greatly facilitates the ease of seating company when the names of the guests are placed on their plates. It is by no means an easy task for a hostess to remember the exact place assigned to each guest without some aid of the kind.

The head of the table is generally the position farthest from the door, and the foot opposite. The master of the house usually has the sideboard at his back.

If two kinds of soup be given, the clear or white soup is placed opposite the hostess. Boiled meats and puddings are likewise placed opposite her; and the roast joints and pies are served by the host.

Whatever sauces, vegetables, or accompanying relishes may be desired for consumption with certain meats should be placed on the table, at simple dinners, previous to the principal dish itself. Thus, if mock turtle soup be in question, cut lemons should be on the table; if roast beef, scraped horseradish; if lamb, mint sauce, &c., with appropriate gravies. In removing dishes from the table the accessories are taken away first, and the principal dish last.

It is no longer considered necessary, even at the plainest dinners, to have more than one dish on the table at a time - unless, indeed, the party be large. According to the present principle, fish is not placed on the table till the soup is removed; and the joints are not kept waiting under cover, as was often the practice, till the made dishes had been handed round. So to speak, each dish, now-a-days, with its accompanying vegetables and gravies, constitutes a course. The plan is very sensible, and tends greatly to the successful production and enhanced enjoyment of every kind of dish.

The size of the joints and the number of made dishes should bear some proportion to the number of diners. For all purposes of agreeable conversation, eight persons are as many as should be invited at a time. It is no compliment to crowd guests at a table, and to provide for them in a wholesale manner. Less on the table and fewer to consume is better taste. Other means of receiving large numbers of acquaintances at a time are better adapted to the purpose than by invitation to dinner.

Sameness is the chief drawback to what are termed plain dinners. Directly invitations are issued for ever so small a party, the mind of many entertainers seems to run on a stereotyped bill of fare. The saddle of mutton and boiled tongue and fowls, especially, are almost as inevitable as if decreed by fate. Granting that these are the very best of fare, it is possible to have enough of the same thing, and to wish for a change. A well-broiled rumpsteak and oyster sauce, or a roast fowl with water-cresses, a goose, a breast of veal stuffed and rolled, a jugged hare, or even a boiled leg of mutton with mashed turnips, would be welcome as a change in the festive season, when roast beef and boiled turkey, or saddle of mutton and boiled fowls, have been repeated to death. If any member of the company is known to entertain a partiality for any kind of dish, it is a compliment to set such fare on the table, without reference to its being a "company dish" or not. Some persons are passionately fond of sucking-pig, others equally enjoy boiled calf's-head, and many consider a well-boiled steak and kidney pudding the very perfection of good living. Again, it is universally acknowledged by experienced diners that the course of game comes too late in the general order of things. A brace of pheasants is often purchased at great expense, to be put on the table, looked at, and removed without having been touched. Most people, if they had the option, would rather see pheasants occasionally take the place of fowls, at a time when the appetite is keen enough to enjoy the delicacy.

The same error dictates that very little variety is made in the bill of fare for summer or winter season. Hot salmon and roast lamb are seen at almost all summer dinner parties, when people would so much prefer nearly a cold dinner, cooling salads and beverages. Plain lobsters, a dressed crab, a dish of smelts, trout, or red mullet would be quite a luxury in the spring, after the solid sameness of our winter cheer.

Of course, in all we have said in the latter part of this article, we refer to homely dinner-parties, and not to costly and elaborate entertainments.

THE TOILETTE.—XXI.

MISCELLANEOUS RECIPES.

An excellent Remedy for Chapped Hands. Get an ounce of the best yellow bees'-wax; scrape with a small knife, very thin, as much as will lie lightly in a bears'-grease pot. Do not press it down. Pour gently on to the wax as much very good olive oil as will just fill the pot, and place it in the oven until the wax is dissolved. Let it remain untouched until quite cold. This is a certain cure for the worst chaps in one night. Should the yellow wax meet with objections, white wax may be used instead, but the cure will not be so quick or certain.

Myrrh Dentifrice.—Mix a quarter of a pound of pulverised cuttlefish with half an ounce of powdered myrrh.

To make Rose Lip Salve.—Put into three ounces of oil of almonds half an ounce of alkanet to colour the oil. Let them stand until sufficiently deep coloured, then strain. Melt one ounce and a half of white wax and half an ounce of spermaceti with the oil. Stir till these ingredients begin to thicken, and add twelve drops of otto of roses.

Another Receipt.—Get two ounces of almond oil, one ounce of white wax, one drachm of alkanet, and slowly melt, stirring till sufficiently coloured. Strain, and add six drops of otto of roses well stirred in.

Hair Wash to Clean the Hair.—Add to a wineglass of cold water half a teaspoonful of sal volatile, and with a small piece of flannel or sponge well wash the head and hair, dividing it into partings, so that every part is washed. This hair wash cleanses quickly, and that it preserves the colour of the hair has been proved by an experience of ten years. Spirits of hartshorn may be used instead of sal-volatile, six drops to the wineglass, and applied in the same manner.

To Clean Hair Brushes Quickly and Easily.—A dessert-spoonful of hartshorn to a quart of cold water, in a wash-hand basin. Dip in the hair of the brushes, and rub them together until clean. Then rinse well with cold water; rub dry with a towel, and stand upright at an open window.

Almond Tablets for Smoothing and Whitening the Hands.—Dissolve in the oven an ounce of white wax in a small jelly jar, with half an ounce of almond oil, and [illegible] drops of essence of almonds. When melted, pour into lids of pomade pots, or the pot itself, having oiled them for turning out when cold.

THE HOUSEHOLD MECHANIC.—XLIII.

OVENS (*continued from Vol. II., p. 376*).

AT pages 373—376 (Vol. II.) will be found particulars of several of the best sorts of ovens; but of ovens, as of other things, it is expedient that there should be many kinds and diversities to meet the requirements of various places, purposes, and circumstances. Brick ovens are well suited for country use, and under circumstances where the daily baking of bread is required. Iron ovens are best suited where an occasional or weekly baking only is called for, the difficulty and expense of heating a brick oven when let go cold being too great to render its use desirable. Some ovens are required for the baking of biscuits, pastry, and meat; others to be used in a bake-house or outhouse; some in a kitchen, and some in the open air.

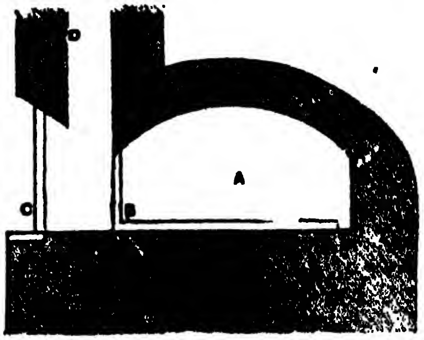


Fig. 6.

The simplest construction of oven is a pot or kettle inverted, with a fire kindled upon its bottom, and fires lighted on all sides so as to surround it. Such ovens have proved most valuable in new settlements, where facility of practice is the main qualification desired. The following is the mode most commonly adopted:—A plate of iron is first heated, generally by burning some sticks of wood upon it, which being well brushed off, flour is sprinkled upon the iron plate to prevent the bread sticking. When the loaves are placed upon the plate an iron pot or kettle is turned upside down over them, fire lighted upon the bottom of the kettle, and the whole surrounded with burning sticks. Bread, as also meat or pastry, may be well baked by this simple and primitive process, the heat of the fire on the bottom of the pot striking downwards, and baking whatever may be contained beneath. It is obvious that in this kind of oven there is no escape for steam, which in some cases is an advantage, although, generally speaking, the contrary. A simple oven is often constructed of clay, somewhat in the form of a large bee-hive, and, like it, set on four posts fixed in the earth. In new settlements, in the absence of such ovens as these, the bread is baked upon the hearth in large iron pots, called "bake-kettles."

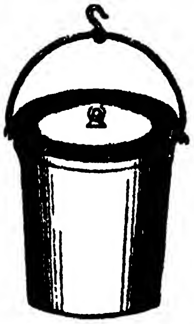


Fig. 1.

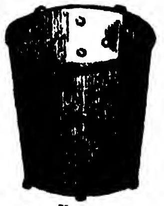


Fig. 2.

Fig. 4.

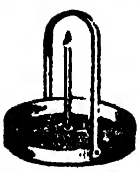


Fig. 5.

Fig. 3.

While speaking of primitive ovens, so simple in their construction as to suit new settlers, it may be as well to refer to an excellent invention patented a good many years since under the title of the "Domestic Oven." The object of this invention was to provide a cheap and durable apparatus, suited alike to the requirements of the new settler and of the army and navy. This so-styled oven is equally suited for baking bread *well* and cooking other kinds of food. It may be made of any size, and is perfectly portable.

The following particulars relate to an oven of this kind of a small size, and it is probable that some additions may pertain to those of larger size. The whole apparatus is represented by Fig. 1, the portability of which is plain without demonstration. The exterior of the apparatus, as seen in the figure, is simply a cast-iron pot or boiler, which of itself is applicable to all the sundry uses and purposes of a pot or kettle. The lid is made to fit very closely, so as to avoid any radiation of heat and the escape of rarefied steam, but allows dense elastic vapour to escape. The vessel is to be suspended, as will be perceived by the hook attached, over the fire, or it may be set in front of the fire; while with regard to the larger sizes, they may well be set in brickwork if convenient, after the fashion of common boilers. Fig. 2 represents an interior vessel, perforated with holes about the upper part and bottom, which is to be placed within the boiler for the purposes of baking bread or pastry, roasting meat, or steaming potatoes or other vegetables. By means of the projecting studs represented in the figure, this interior vessel is secured steadily in the middle of the outer boiler, leaving about a quarter of an inch space between the two vessels, for the purpose of allowing the vapour to circulate, which is extremely hot, and operates upon the bread or other contents of the inner vessel. For the purpose of preventing too great heat at the bottom of the oven when set over a fire, a false or movable bottom is placed within, as shown by Fig. 3. This movable bottom has also an additional use in enabling the oven to be quickly emptied of its contents, besides being easily kept bright and clean. Fig. 4 represents a double pan or shelf, which may be placed within the oven for the baking of smaller-sized articles. By its use double the number may be baked at the same time. In the larger-sized apparatus there are similar stands, fitted with three, four, or more shelves or pans. For the purpose of pastry these stands are unexceptionably useful, as also for the frying of meat, baking of potatoes, &c. The handle shown in this figure is jointed so that it may fall down on either side; it is for the purpose of setting in and lifting out the stand of shelves. Fig. 5 represents the meat roaster, which consists of a circular pan with an upright spit in the centre, upon which to spit the joint or poultry, many birds being able to be spitted at one time, or mutton cutlets may be cooked crisply and to perfection upon it. The handle is jointed and lies down at either side, as in Fig. 4.

In the article before referred to we stated certain objections to the common brick oven, heated by wood; nevertheless, such ovens are the simplest in construction, the cheapest, and at the same time the most durable. For these reasons they may be used with advantage in country places, either for cottages or small houses, where there are plenty of fagots or wood to burn. These ovens when properly heated are superior to any other kind of oven for baking purposes, possessing as they do what bakers term a "soaking heat"—in other words, a uniform, lasting heat, which penetrates the bread in a more perfect and thorough manner than the heat distributed in an iron oven. Thus it is supposed by many persons that neither bread nor pastry can be properly baked *by any possibility* in an iron oven. This opinion, however, is in error, and can only arise through want of experience. The brick oven is a very long time in heating to a sufficient degree when let grow cold. It is, therefore, unsuited for those

who only require to bake once or twice a week, since if the bread be set in before the oven has reached its proper degree of temperature the bread will turn out imperfectly baked, heavy, and sodden.

For small country bakers, farm-houses, and large country families, who require continual baking or a considerable quantity of bread prepared at one time, the following description of oven—viz., the common brick oven—will be found especially suitable. Fig. 6 represents a vertical section of this oven, which is of a circular or oval plan, and is arched over with good sound bricks, behind which a quantity of iron hoops may be well placed, fixed in amongst the mortar, for the purpose of creating and maintaining a superior heat. The floor is paved with flat tiles closely laid together. A represents the arched oven, B an inner door, C the exterior door, and D the flue. Faggots are put into the oven, placed upon the tiles in a heap and lighted, until the oven attains the proper degree of temperature. The oven is then cleansed from the embers of the wood, and the bread set in. Both the inner and outer doors are closed for the purpose of keeping in the heat, the bread being baked simply by the heat retained by the brickwork of the oven. When the bread has remained in the oven time enough to be sufficiently baked, the doors of the oven are opened and the bread is removed by a peel.

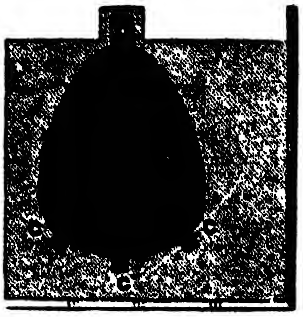


Fig. 6

The iron oven is most suitable in towns where the brick one is seldom admissible, and also where wood is scarce and dear. In these cases the iron oven is less expensive, as well as more convenient. Greater skill is required both to fit up and manage an iron oven; but when the iron oven is once fitted in a proper style, and its use is thoroughly understood, it is found to answer the purpose nearly as well as a brick oven, and it possesses many advantages for baking on a small scale. The great advantage which an iron oven possesses over a brick one is that it may be quickly heated to that degree known by bakers as *the right degree*, without which the bread must be imperfectly baked; while, on the other hand, the heat of the iron oven is more liable to be unequal, and therefore requires more care and skill in the management while baking.

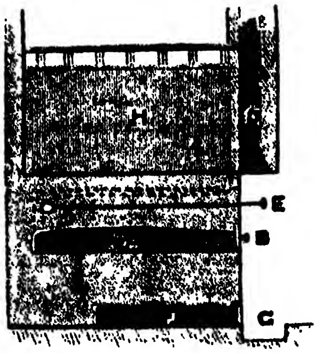


Fig. 7

The following description of oven is very generally used in England, and also on the Continent. Figs. 7 and 8 represent a ground-plan and section of it. The oven or chamber (marked A) wherein the bread is baked is of oval shape, and arched. It is usually about twelve feet in depth and ten in breadth. The floor may be best constructed of tiles or firebricks, but it may be and is often formed of clay, and on the Continent is commonly constructed of stones or stone slabs. The height of the arch of this oven is generally very low, often not more than a foot and a half—perhaps, even, not so much. The breadth of the oven door, which is marked B in the figure, is usually from one and a half to two and a half feet, by which door the fuelling is introduced as well as the loaves. There are three flues, marked C C C, situated at the back of the oven, which run in a horizontal direction to the front of the oven, and there unite, conveying the smoke from the firing (whether wood or coals) into the chimney marked D. At E is a damper, by which the draught created by the flues, C C C, may be regulated. The space indicated by the letter F represents the spot where the charcoal taken from the oven is deposited. G represents a pit for the baker to stand in while setting in and drawing out the bread, the use of the pit being that the baker may stand on a convenient level with the floor of the oven, which facilitates his operations. H is the bakehouse, which is kept at a temperature adequate for raising the dough by means of the heat which escapes from the oven and flues. A boiler is placed at the front of the oven, employed for heating water used for mixing the dough. To heat this oven it is desirable that either brushwood or thin pieces of board should be employed, since the oven being entirely heated by means of the flame arising from the wood, were thick wood or logs used, the heat would be irregular; besides, owing to the draught of the oven being slight, the ignition of the logs would necessarily be imperfectly maintained. To set light to the fuel the door is not opened, but a lighted piece of wood is introduced through a small aperture made in the door. The fuel is allowed to remain in the oven no longer than flame arises from it; and so soon as the embers or charcoal begin to glow, all flame ceasing, they are removed, and the oven swept out and cleansed for the reception of the loaves.

In the smaller ovens of this construction, in place of the flues at the fore-part of the oven are two apertures of small size, formed in the arch towards the front of the oven, a sufficiency of draught entering through the door. Under these circumstances, however, it is necessary that the fuel should be of a very light kind, slips of thin board being preferable. By this system of flues much heat is lost, which loss the door, being unable to be closely secured (draught being necessary to be admitted), considerably increases; more wood, therefore, is consumed, and the only return for this extra expense is that the amount of charcoal produced is augmented. In districts where turf can be easily procured it is used, as it is found to answer the purpose equally as well if not better than wood. It is not always the case, as before stated, that when flame ceases to rise from the fuelling the charcoal or embers are removed, since by reason of the back part of the oven being without exception hotter than the front, the glowing embers, or (in cases where the oven is heated by coals) glowing coals, are frequently detained at the brink of the oven, in order to maintain a more regular heat throughout; nevertheless, whether this expedient be adopted or not, it is often found necessary upon the first examination of the batch, in the course of half an hour, or somewhat less, to remove some of the loaves from the back and hotter parts of the oven to the front, and set in their place loaves from the front and colder part of the oven.

To bake properly requires attention to several circumstances. First, that the oven be heated to exactly the right degree; for if the temperature be too low, the bread will turn out sodden and doughy; and if it be too high, an over-hard crust will be formed at the bottom of the loaves, which will confine the moisture, while the exterior may be burnt.

It may be urged that much of this article applies only to professional bakers, but as many of our readers live away in the country, and must depend upon themselves for a supply of good and wholesome bread, we do not think we err in devoting space to so important a subject.

On the question of the proper mode of heating ovens we shall have something to say in another paper.

COOKERY.—LXIV.

THE FRENCH MODE OF PREPARING DISHES.

In the series of papers on the subject of Cookery that have lately appeared in the pages of the HOUSEHOLD GUIDE, attention has been chiefly directed to the manner of preparing food in the English style, although occasional reference has been made to the peculiarities of French dishes. It is now proposed to direct the attention of the reader to the various methods of dressing food in the agreeable and palatable manner for which the French are so celebrated. The utmost attention will be paid in these articles, to give the best receipts employed at the present time for preparing every kind of food, not only in the most attractive and luxurious way, but also in the simple manner suited to the most moderate incomes, and for those readers who seek only to learn how to dress food in the most economical, nourishing, and palatable way. Occasionally we shall describe dishes for which receipts have already been given, but some variation in the mode of preparation will be observed.

Since it is customary at dinner to serve round the soup first, we will commence with the subject of potages or soups.

To prepare Pot au Feu.—Put the meat, previously cut into small pieces, in the pan with sufficient cold water, the proportions being four pints of water to about two and a half pounds of meat. A sufficient quantity of salt should then be added. The saucepan is now to be placed on the fire, great care being taken that the water shall not boil until all the scum has risen to the surface, and been carefully removed. Now put into the pan some carrots, parsnips, turnips, leeks, celery, one or two cloves, and (if you like the taste) some garlic. The contents of the saucepan are now to be coloured with burnt sugar or a roasted onion. While preparing this dish, you should so manage your fire that the pan which must be kept well covered—shall boil slowly, but regularly, so that it may not be necessary to add any water to the contents of the pan, to replace that lost by evaporation. At the end of five or six hours the meat will be cooked, and the soup ready for use. Any fat that may be floating on the surface must be carefully skimmed off, and the soup strained through a proper sieve kept for that purpose.

Potage au Naturel avec Pain (Soup with Bread).—Take some crusts of bread, and lay them in the soup tureen, and pour sufficient soup over them to make them moist. Afterwards, when the soup is served up, you pass into the tureen sufficient of it to cover the bread.

Potage aux Petits Oignons Blancs (Soup with Small Onions).—To prepare this dish, you must first make a soup similar to the last, and then take about sixty small onions more or less, according to the quantity you desire to prepare—selecting those of which the bulbs and tops have not been injured, and place them in the potage. When ready, this soup may be poured on bread, in the manner previously directed.

Potage aux Carottes Nouvelles (Soup with Young Carrots).—Take some carrots, cut them into small lengths about one inch long, being careful to make them all the same size; then scrape them, and put them in the broth, where they must remain until sufficiently boiled. When ready empty the soup into a soup-tureen, or pour it over slices of bread in the way previously directed.

Potage aux Navets (Soup with Turnips).—Prepare some turnips in the manner directed for carrots, put them in a pan or saucepan, and fry them in butter quickly over a brisk clear fire, frequently turning them. When nearly done, put them in a strainer to drain, and use them with the soup, as in the previous case.

Potage aux Poireaux (Soup with Leeks).—Cut some leeks in pieces about two inches in length, wash, and cut them into strips; afterwards fry them in butter over the fire, until they are well browned. Pour some good bouillon on them, and cook them slowly over a gentle fire for three-quarters of an hour, and serve in the manner directed for *potage au pain.* In preparing this dish, leeks may be employed, not cut in strips. In this case they should be all cut to the same length (two inches) and thickness. They are then to be soaked in water to remove some of the strong flavour they possess, and afterwards put into the soup, and heated in the manner directed for *potage aux petits oignons.*

Potage à la Pointe d'Asperges (Soup with Asparagus Tops).—Prepare an ordinary potage, and then take some asparagus tops and cut them, and soak them in water for some time. Put them in the stock already prepared, and boil for ten minutes, taking care that they shall not lose their green colour, nor become too soft.

Potage aux Petits Pois (Soup with Peas).—Steep the vegetables freely in water, and then put them in half of the bouillon prepared for the soup, and boil for half an hour, according to the quality of the peas. Add a little sugar, and use it as directed for *potage au pain.*

Potage aux Laitues Entières (Soup with Whole Lettuces).—Take some perfectly sound lettuces, selecting those in which the heads have not been injured, and after washing them, steep them in water. Now put them in boiling water, with about a handful of salt, the exact amount depending on the quantity of water. When they have been boiled for half an hour, they must be cooled, by placing them in a vessel of cold water. They are then to be pressed and tied round, so that they may not fall in pieces. Place at the bottom of a saucepan some slices of veal, and cover them over with slices of bacon; put the lettuces on the top, and cover them with more bacon. Afterwards cut slices of onions and carrots, and garnish the lettuces. Pour some stock over them, and boil over a slow fire for one hour, until they are thoroughly done. Sometimes, after having steeped them, they are put in a saucepan, and cooked in the bouillon. When ready, moisten some bread (placed in the tureen) with the stock, and having drained the lettuces in a strainer, place them on it.

Potage aux Laitues Emincées (Soup with Cut Lettuces).—Select some young lettuces, wash, and cut them into very thin strips, afterwards frying them in butter until well done. Now pour stock over them, and boil them for one hour, and serve the soup on bread in the usual way.

Potage à la Chicorée (Soup with Curled Endive).—This soup is prepared with the curled endive in a similar manner to the above.

Potage aux Romaines (Soup with Cos or Roman Lettuce).—Some persons prefer this potage. To prepare it, take Cos lettuces, and dress them in the way directed for *potage aux laitues entières.* When cooked, cut them into two or three pieces according to their length, and prepare as directed for that dish.

Potage aux Menues Herbes (Herb Soup).—Take two lettuces, and a handful of sorrel and chervil; pick and wash them; then bruise the lettuces, after removing all the outside leaves; bruise also the sorrel and chervil. Place in a saucepan, and pour over them a sufficient quantity of bouillon—previously strained—to boil them in. When dressed, moisten bread in the tureen with good stock, and lay the herbs on it.

Soupe aux Herbes Maigres (another Herb Soup).—Cut a handful of sorrel into shreds, and do the same with two lettuces and a large pinch of chervil. Fry them in butter; when they are done, pour water over them, with some salt and coarse pepper, and boil them for half-an-hour. Then, before dishing it, add three eggs, well beaten up.

Potage Maigre aux Herbes à la Parisienne.—Take two large handfuls of sorrel, one lettuce, and a pinch of

chervil; pick and wash all the herbs, chop them up in coarse pieces, and put them into a saucepan with a piece of fresh butter, about the size of half an egg. Place the saucepan on the fire, and when the herbs have been fried for a few minutes, pour in about two pints and a half of water (a little more or less, according to the quantity of soup you wish to prepare), and put in some salt and coarse pepper. After the soup has boiled for three-quarters of an hour, cut some of the upper crust of bread into thin strips, and put them in the saucepan with the herbs. Boil them together a little, while you put into a tureen the yolks of four fresh eggs and four ounces of very fresh butter. Pour the soup slowly into the tureen, stirring up with a spoon, while doing so, the eggs and butter, to prevent their separation, and serve up while hot.

Potage à la Chicorrée à l'Eau (*another Soup with Endive*).—Chop up four or five curled endives, taking care to use only the best pieces, and fry them in butter until well done; but it will not be necessary to brown them. Now pour in some water, and boil them for three-quarters of an hour. When ready to be served up, season with salt, coarse pepper, and a little nutmeg, and mix it up with three eggs beaten together. This soup is to be poured over the bread in the tureen when served up.

Potage Maigre à la Tyrolienne (*Thin Tyrolese Soup*).—Take two cucumbers of a moderate length, remove the rind, and cut each of them lengthways into four pieces, at the same time removing the seeds they contain. Then cut the pieces across; put the cucumber into a saucepan with two ounces of butter. Now wash and chop up into coarse pieces some handfuls of sorrel, a lettuce, and a handful of purslain. Put these herbs into the pan with the cucumbers, and place it over the fire, and when it has fried for a few minutes, add a pint and a quarter of water, three-quarters of a pint of green peas, with salt and pepper, and boil the whole for three quarters of an hour. Now cut the upper crust of some bread across, and put it in a tureen, with about four ounces of good butter, four yolks of eggs, and a glass of good cream. Pour the soup into the tureen, taking care to stir with a spoon the butter, the eggs, and the cream, to mix them well, and to prevent the butter from rising to the surface.

Julienne. This potage is composed of carrots, turnips, leeks, onions, celery, lettuce, sorrel, and chervil. The roots are cut into strips, about an inch and a half long. The onions are cut in two, and then into slices, so that they may form half-circles. The leeks and celery are to be divided into strips, while the lettuce and sorrel are to be chopped up. Fry the roots in butter until they are almost done, then put into the pan the lettuce, herbs, and chervil, and let them all remain until well cooked. Now pour over them some stock, and boil with a slow fire for an hour and a half, until they are cooked. Then arrange the bread, and pour out the *julienne* on it.

Faubonne. The same vegetables are employed in preparing this dish as are used for *julienne*, and they are to be cut into pieces of the size and shape of dice, while the lettuce and sorrel require to be bruised. Now fry the roots in butter, and also the leeks and herbs. Pour as much bouillon over them as may be required for soup, and proceed as directed for *potage au pain*.

Potage aux Choux (*Soup with Cabbage*).—Steep two cabbages in boiling water for half an hour. Cut them into four pieces—more or less, according to their size then wash, dry, and cut them into strips. Put at the bottom of the saucepan some slices of veal, and cover them with thin pieces of bacon, place the cabbages on them, and, lastly, lay over the cabbages more slices of bacon. Place on the top of all, two carrots, two onions, two cloves. When the contents of the pan are cooked, pour in some stock, and proceed as directed for *potage au pain*. The cabbages should then be drained, and placed on the potage. The contents of the saucepan are now to be warmed, and after the fat has been scummed off, added to the soup.

Soupe aux Choux Ordinaire (*another Soup with Cabbage*).—First of all, place in the water contained in the saucepan some bacon, or newly salted pork, and a breast of mutton. When they have boiled for about an hour, put in a white cabbage, which must be cut and sliced as previously directed, the same roots, some green peas (if in season), and, if you like, a thick ordinary sausage, or a Polonese sausage. When the whole is sufficiently cooked, pour the stock over the bread, and allow it to soak in it for a short time. The cabbage, the legumes, and the meat are to be served on a dish separately.

Potage aux Choux Maigre (*Thin Soup with Cabbage*).—Cut in pieces half a cabbage, rejecting the outside portions, and fry them with a good-sized piece of butter—according to the size of the cabbage. When it is so well done that it begins to turn brown, add water to it, with salt and coarse pepper, and allow it to boil for three-quarters of an hour, or an hour, until the cabbage is done. When served up, the soup is to be poured over bread.

Potage à la Purée de Racine (*Soup with Carrots*).—Chop up from twenty to thirty carrots, according to size, fry them with four ounces of butter, and turn them frequently. When they have been cooking for three-quarters of an hour, or an hour, pour some bouillon over them, and add some sugar the size of half an egg, and allow them to simmer for two hours over a slow fire, and strain through a sieve. If the soup should be too thick, it must be thinned with stock. Now cut some crusts in the manner directed for *potage au pain*, swell them with clear stock, so that they may absorb the liquid the more easily, and then pour the soup over them.

POINT LACE WORK. XVI.

PARASOL COVER.

OUR design (page 285) is the first part of one for a parasol cover; for, on account of the dimensions of our publication, we are compelled to divide it. A more elegant piece of work cannot well be executed in point lace than a parasol cover, or one better calculated to exhibit the beauty of the needlework. It may be used for several successive seasons, as it can be arranged to fit any parasol, and will look well over any colour selected. For slight mourning, over a black silk parasol lined with white, it is peculiarly effective. Our design may be worked either with a plain open-edged braid, or one with holes at intervals. The open overcast will greatly improve the edge, and the braid itself may be either of the finest quality, or of a slightly looser texture, according to the taste of the worker. The greater the variety of fancy stitches introduced, the more effect will be given to the work; and the point lace cord sewn round the edge of the braid will be found a desirable addition, though not an indispensable one. The stitch described in our last chapter will be useful, and may be used freely in this design. Another and a quicker method of working the bars can also be substituted for the overcast ones. Let the threads be stretched as for the usual bar, and instead of overcasting, merely sew over them loosely. No dots are made on the bars we are now speaking of, but they look light and pretty, and the difference of time in working is a great point gained, more especially in so elaborate a piece of work as a parasol cover. It will be found that eight entire designs—Figs. 1 and 2—will be required to cover the parasol; and should these not prove sufficiently large, it will be easy to add leaves at the side in working, so as to adapt the whole to the required size. The eight parts, when worked, must be joined with bars to form the entire cover, and tacked neatly but slightly down each rib, and here and there round the edge of the parasol.

HOUSEHOLD DECORATIVE ART.—XLII.

FISH-SCALE EMBROIDERY.

The production of beautiful objects of decoration by no means necessarily involves great outlay and expensive materials. A knowledge of how to utilise trifles which would otherwise be valueless, will often enable the housewife to render her home attractive without expending that money which may be required for other purposes. We are about to shew how a species of exquisitely graceful embroidery may be produced, in which the chief material employed is nothing more than the scales of one of our commonest fresh-water fishes.

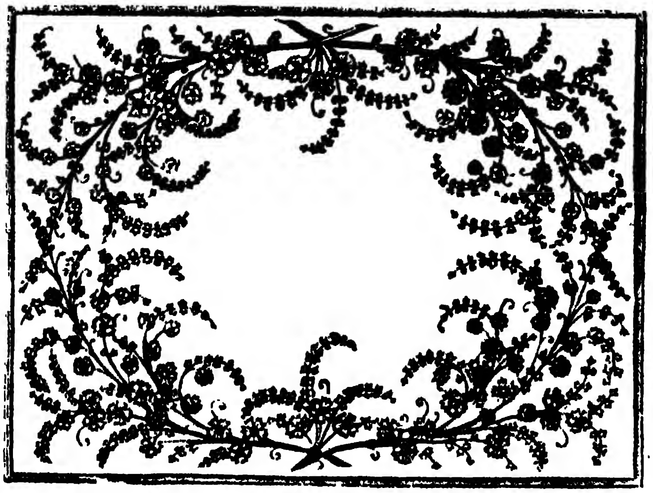


Fig. 1.

Fish-scales, sewn upon silk or satin, may be arranged so as to form flowers, leaves, ornamental borders, and also birds, to enrich many of those small articles of taste, which always conduce to throw an air of refinement over a home, and give the visitor a favourable opinion of the occupants. The effect also produced by the employment of a material generally so little regarded as the scales of fishes, is one which will much surprise and gratify those of our readers who have never seen it employed in this manner.

Fig. 2.

The scales of various fishes may be used, but those of the perch are much to be preferred, on account of their beautiful serrations. When taken from the fish they should first be thoroughly cleaned, and before they have become dry and hard, two holes should be pierced through each with an instrument made of a stout darning-needle fixed in a wooden handle. These holes should be made near the roots or bottoms of the fish-scales, which will then be quite ready for use in the embroidery.

The best ground, and that usually chosen, is one of blue or pink silk, or, still better, satin of either of these colours. The pattern should first be drawn to the required size upon white paper, and its outline then carefully pricked through with a needle. Through the holes thus made powdered vermilion must be rubbed, which will thus transfer the pattern to the ground; but if the ground is of a dark colour whitening should be substituted; and a small piece of wash-leather is best for applying the powdered colour.

When the paper is removed the pattern will be seen clearly indicated on the silk by small dots; but as these, being in dry powdered colour, are easily obliterated, it is necessary to make the outline more permanent, by going over the line with a camel-hair pencil and ordinary water-colour vermilion or Chinese white, according as the ground may require a dark or light outline. This method of tracing will also be found useful in many other kinds of embroidery; and here we may remark that the lines drawn should always be well within the dots, that they may be easily covered and hidden by the work. For a small flower a dot in the centre will be sufficient, and in large flowers no marks should be made with the camel-hair pencil over which the scales will not, when sewn on, well project, and completely conceal them.

After the pattern has been traced in this manner on the satin, we will suppose that a rose or some similar flower has to be worked in the fish-scales. A row of these is neatly and carefully sewn through the two holes spoken of in the previous column, round the circumference, to represent the outer circle of petals, and within these a second circle is stitched, overlapping the former, so as to conceal the threads by which they are attached; this is repeated till the centre of the flower is reached, which is formed in a large flower by a cluster of beads, and in a small one by a single bead. Yellow or gold beads look remarkably well as centres, as these most nearly resemble the pollen of the natural flower.

Small leaves, or leaves which consist of a number of separate leaflets, may be well made in fish-scales, but larger ones may require to be worked in ordinary embroidery. Stems may also be worked in embroidery, very quickly and effectively too, by using chenille.

Trefoil and the maiden-hair fern are among the best leaf forms for representation in fish-scale embroidery. In combination with the fish-scales may be used small flowers, leaves dots, and other ornaments, stamped out of thin sheet pearl, such as is used in inlaying papier-maché work, and of which a considerable number may be bought at a trifling expense at many fancy warehouses and shops. A combination of beads and fish-scales may also be used, and will produce a good effect.

The accompanying illustrations represent various modes in which this style of decoration may be employed to adorn articles of the toilette, banner screens, &c., which will readily suggest themselves to the clever designer.

Our illustration (Fig. 1) is intended for the top of a pin-cushion, the ground being of a light-coloured satin. The stems may be worked either in gold thread or maroon-coloured silk, and the petals of the flowers and the leaflets are each composed of one fish-scale. In a case

like the present, where single scales are used, it is of course impossible to hide the stitch by which they are fastened to the background, but this may be rendered decorative by carrying the thread across the scale from its root to its edge, so as to resemble the centre rib of the natural leaf. The flowers in this design are single, and have five petals with a bead in the centre.

The design given in Fig. 2 is one which may be applied to almost any article, and in combination with flowers, or an ornamental border if desired. The eye of the bird will be formed by a single bead, and the beak, legs, claws, and some of the feathers, should be worked in silk embroidery. If in this, or any other design for fish-scale embroidery, a brilliant colour be desired, it may be obtained by using the scales of various kinds of fishes; or more conveniently still by tinting the scales, before they are sewn on, with the bright, transparent varnish-colours described in our preceding article on "Fans, and how to make them" (page 305, vol. ii.).

The banner-screen (Fig. 3) we have seen carried out in pink silk, the border, which is shown of a darker shade in our engraving, being green, and these colours are separated, and the whole work is bound with gold-coloured braid. The effect of the fish-scales upon the contrasting colours, pink and green, is very fine, and, indeed, it would be difficult to name a method of ornamenting screens and other articles of the character we have described, which produces a more beautiful effect. The brilliant tints of humming-birds, peacocks, parrots, and other gay and resplendent natural objects can be imitated with great fidelity and success.

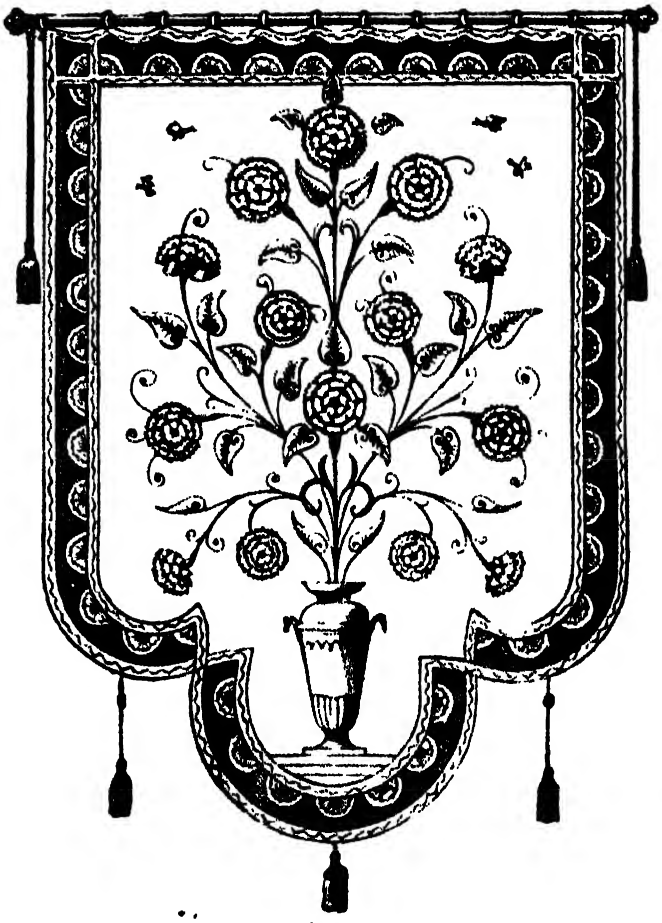


Fig. 3

WOOD EMPLOYED FOR HOUSEHOLD PURPOSES.

We have previously (page 77, vol. i.) mentioned some of the kinds of wood best adapted for use in household carpentry. In this article some additional information is afforded and the peculiar characteristics of other woods, not previously mentioned, are noticed.

Mahogany is the wood of the *Swietenia mahagoni*, and is a native of the Honduras and the West Indies. It is considered that the Honduras and the Spanish mahogany are the same kind of tree, the different appearances of the wood being produced by differences in the soil. The Spanish mahogany is the most valuable, as it is harder, darker, and possesses a closer grain than the other variety. What is known as Madeira wood consists of the same tree, grown in a poor soil, by which it becomes contorted. Mahogany is much employed cut into thin layers called veneers, for the purpose of gluing on furniture made of common wood to give it an ornamental appearance. It is well adapted for this purpose, owing to the tenacity with which glue adheres to this wood.

Rosewood, supposed by Dr. Lindley to be the wood of a species of mimosa, is a native of Brazil. It is much employed for the same purposes as mahogany. Rosewood is hard and heavy; its grain varies in character, sometimes being coarse, and at other times of a fine texture. Different portions of the wood vary in colour from a purple—sometimes so deep as to be almost black—to a hazel tint. It is to the contrast presented by these colours that the wood owes its beautiful appearance.

The Pear-tree wood (*Pyrus communis*) is a fine grained and heavy wood, both tough and not liable to warp. It is much employed for wood engraving, for turning, and to make handles of tools. This wood is of a reddish white colour, but is sometimes dyed black, when it can scarcely be distinguished from real ebony.

The Alder (*Alnus serrulata*) is chiefly used to convert into charcoal for the manufacture of gunpowder. It is much used for the soles of clogs and sabots, from its lightness and durability.

The Holly (*Ilex opaca*) is of a satiny appearance and close grained. When quite dry it is very hard, and is used for small articles of furniture, for ships, and also for wood engraving.

The Boxwood, the product of the *Buxus sempervirens*, grows in all parts of Europe, and also in Turkey. It is of a yellow colour, susceptible of taking a high polish, and is used for rules and musical instruments, and for wood engraving. There is another kind of this wood, called the Jamaica boxwood (*Schæfferia buxifolia*), which much resembles it in appearance, and is used for the same purposes.

Ebony is the wood of various species of the *Diospyrus*. There are three kinds of this wood commonly met with in commerce, the Mauritius being of the finest quality and deepest black, but it is the most expensive, and is very wasteful from the number of unsound portions it contains; while the African and East Indian, the other kinds of ebony, although cheaper, and not so subject to this defect, are of inferior quality, and are more porous.

Dogwood (*Cornus Florida*) is a hard solid wood with a fine grain, capable of receiving a high degree of polish. It much resembles boxwood in appearance, and is chiefly used as a substitute for that wood.

HOUSEHOLD AMUSEMENTS.—XXIX.

CRIBBAGE.

CRIBBAGE used formerly to be considered the best game of cards for two persons, and many still hold this opinion, although bézique* threatens to take its place in general popularity. There is more of the element of calculation in cribbage than in bézique, and it is this that renders it more attractive to people who prefer a game in which skill, not chance, predominates.

Cribbage may be played by either two, three, or four persons; but the two-handed game is its best form. An ordinary pack of fifty-two cards is used. The game consists of sixty-one points, and the score is kept on a board pierced with a number of holes, in which points are marked by small pegs. The players mark on opposite sides of the board, and the first to reach the sixty-first, or "game hole," which is placed at one end of the board, between the scoring-lines, is the winner of the game.

For three players a triangular board marked with sixty holes for each person is used; but when four play they are divided into sides, and the ordinary board for two-handed cribbage suffices.

The essence of the game is the making up of certain numbers in the play of the cards, all of which have, therefore, a numerical value. The ace counts for one only; then the numbers proceed up to ten as usual; and knave queen, king, each count for ten. There is no superiority of king over knave or queen, and no taking of tricks, as at other games. The following is the routine:—

The players cut for deal, and the lowest card—reckoning according to cribbage value—carries the deal. The non-dealer pegs three holes to begin with. He does so because the first deal is supposed to confer an advantage, and the three holes are given to equalise the game.

The dealer shuffles the pack, which is cut by his opponent; and then, in the ordinary game, five cards are dealt to each player, one at a time, beginning with the non-dealer. The cards are dealt face downwards, and the rest of the pack is left in the same way on the table. After the deal, each player looks at his cards, and casts out two for the "crib," which belongs to the dealer. These also remain together, face downwards, until the end of the hand.

After these cards are thrown out, the pack is again cut by the non-dealer, and the dealer turns up the top card left on the stock. This card is of importance when the points to be scored by each party come to be reckoned at the end of the hand, but has no bearing upon the play. Should the turn-up card be a knave, the dealer immediately scores two points, known in cribbage parlance as "two for his heels."

The parties play alternately with the three remaining cards, the non-dealer leading. He places a card before him, calling its value, as, "three," "ten," &c. The dealer then lays down another card, and says "six," or whatever number it may be. If he can make *fifteen*, by playing a five after a ten, or in any other way, he counts two points, and pegs the holes accordingly. If the second card played does not reach the number, it may be made up by the third. If the players go beyond fifteen without either making that point, the next object is to make thirty-one, when the play of the hand ceases. Thus, supposing the first card to be a ten, the next a nine, and the third another ten, twenty-nine will be the last number declared, and if he whose turn it is next to play has a two, he throws it down and calls "thirty-one," for reaching which two points are scored. If he cannot play without exceeding thirty-one, he calls "go," and his opponent takes a point; but the latter may also make up the thirty-one and score for it if he has the necessary card in his hand. If the cards are small, and all played before the thirty-one is reached, he who lays the last, making up the number nearest to thirty-one, scores one for the last card.

To make fifteen and thirty-one in the play are therefore the primary objects; but there are others for which points are scored during the play of the hand. The first of these is to "pair" an opponent's card; that is, when he lays down a five or any other number, to follow it with the same, for which two points are allowed. But should the adversary then play a third card of the same value, he makes a "pair royal," and scores six for it. The reason for this must be explained, as the counting for pairs is an important element in the game.

Two points being allowed for each pair, when three cards of the same value are played successively they make six points, because there are in fact three pairs on the table. Thus, the first card and the second make a pair; the second and the third form another pair; but the first and the third are also a pair, and consequently three pairs are produced by the three cards. If, as very rarely happens, a fourth card of the same value is laid down, twelve points are allowed, because, in the same way of reckoning, there are six pairs on the table.

It must be observed, with regard to the tens, that pairs can only be made by exactly similar cards. Knave or king played after a ten will not make a pair, although they possess the same numerical value.

Another and very important object to be studied in the play is the formation of "sequences." These consist of any three or more cards which follow in successive numbers, as two, three, and four, or seven, eight, and nine, &c. It does not matter whether the cards fall in successive order, or whether they are of the same suit, but they must be played together without the intermediate fall of any card out of the sequence. Thus, supposing A to play the four of hearts, and B to follow with the six of clubs; if A next plays the five of diamonds or any other suit, he scores three points, for the sequence of four, five, six; and if B now plays either a three or a seven he takes four points, for the additional card added to the previous sequence. But supposing A to play the four, and B the six, then A to lay down a two or a nine, and B the five, the latter cannot score for the four, five, six, as the sequence has been interrupted.

These are all the points scored for in the play of the hand; but this being over, each party counts the scoring value of his three cards. The non-dealer reckons first. Every fifteen he can count from his cards, with the addition of the one turned up on the pack, entitles him to take two points. If he holds an eight and a seven, for instance, or a ten and a five, making fifteen, he scores two; or if he has an eight in his hand, and a seven has been turned up, he takes two also; and the same for every fifteen he can form by the addition of a card not previously included in the reckoning. He is further entitled to score two for every pair he can make with his cards and the turn-up; and if he holds a sequence of three cards, or two which make a sequence with the turn-up card, he scores for that also. Knave, queen, king, or ten, knave, queen, make a sequence as well as the smaller numbers. If he holds the knave of the suit which has been turned up, he takes one point for it. Lastly, he is allowed to score for a "flush," that is, holding three cards of the same suit, whatever their numbers, he takes three points; and if the turn-up card is also of the same suit, forming what is called a "long flush," he takes four points.

In this way a very high score may sometimes be made from the three cards held and that on the pack. Supposing a player to hold the seven, eight, nine, of clubs, and an eight to be turned up, he counts as many as fifteen, which are thus reckoned:—The eight and the seven in his hand make fifteen, for which he scores two points; the seven in his hand and the eight on the pack make another fifteen—two more points; the sequence of seven, eight,

* For instructions in Bézique, see pages 69, 141, 281, vol. ii.

nine in hand gives three points; casting out this eight, and including that on the pack, makes another sequence of three cards, giving three more points; then there are two for the pair of eights, and three for the flush, making fifteen in all.

The dealer counts his hand in the same way, and then proceeds to reckon his "crib," which is done according to the same principles, with the exception that he is not entitled to score for a flush in crib unless the cards are of the same suit as that turned up. This is a point on which misunderstanding prevails, but the rule of the game is as we have stated it.

The non-dealer in the previous hand takes the deal for the next, and with it becomes entitled to the "crib," the deal and crib thus passing to each player alternately, until one of the players has scored sixty-one points, terminating the game.

The following are the essential points to be remembered in the play of the game. Judgment in the throwing out for the crib is of great importance. When it is your opponent's the object is to give such cards as are least likely to tell in his favour when the crib comes to be reckoned, and to hold as good a hand as you can yourself. To throw out a ten and a five, or any other numbers making fifteen, would plainly be bad, as in that case you give him what would count at once. It is also bad at any time to throw out a five, as there are so many tens in the pack that he is likely to hold at least one, and probably more, and, it may be, a five also, thus forming several fifteens, &c., with your card. It is also injudicious to throw out consecutive numbers, as six and seven, or nine and ten, as he may be able to form a sequence with them. The safe method is to give him cards as wide apart as possible—king and ace, for instance, or queen and two. But if it is your own crib the case is entirely reversed, and you should aim to make it as strong as possible without spoiling your hand.

In the actual play, if you have to lead off, play if you can from a small card, say a four, so that your opponent cannot make fifteen from it; but the chance of doing so may come to yourself. If it is your turn, and you cannot make fifteen, play above that number, so that the opportunity may pass from your adversary. Do not make twenty-one if you can help it, as he is very likely to hold a ten, and score two holes by making thirty-one. Retain a small card, if possible, for the end of the play, so that you may not have to give the opponent one for the "go," but stand a chance of scoring it yourself.

Be cautious in pairing a card played, as the player may hold another of the same value, and be able to score six for a "pair royal." If you yourself hold a second, there is, of course, less danger. Beware, also, of giving the opponent an opportunity of making a sequence, unless you can follow his play in the same fashion. Lastly, "play to the score"—that is, according to the state of the game, being cautious and hazarding little when your opponent is taking a strong lead, and playing a bold game when you can afford to lose a few points if it fails.

The limits of our space prevent us going farther into detail, or describing the peculiarities of the six-card game. It is sufficient to remark, with respect to the latter, that, six cards being dealt to each player, and two thrown out for the crib, the play proceeds with four cards in the hand, and is continued until all the cards are exhausted. Higher scores are necessarily made in counting than at the five-card game, and players frequently agree to go twice round the holes on the board, making the number of points 121. The non-dealer does not take three points at this game.

In respect to this or other card games, we strenuously advise our readers not to be tempted to consider it as other than an amusement, and to resist all invitations to play for even the smallest and most insignificant stakes.

ODDS AND ENDS.

Something about Vegetables.—Vegetables are of great use in correcting the stimulating effect of a meat diet, this being especially the case where the meat has been salted, it having been found that when much salt meat is taken, and but little vegetables, that scurvy and various cutaneous diseases were very prevalent.

The various kinds of cabbage are of much use as articles of diet. They are better suited for persons in robust health, than for the weak. In the latter, they are apt to produce various disorders of the stomach.

Cauliflowers and broccoli are both more tender and more easily digested than cabbage, savoys, greens, or kale.

Spinach, although an agreeable article of food, does not contain so much nourishment as cabbage or cauliflower.

Parsnip contains much nourishment, although, perhaps, not quite so much as the carrot. It is an antiscorbutic, and prevents the ill effects that result from living on a salt diet.

The carrot is a root which contains much sugar, and is very nutritious, but by some authorities is not considered so digestible as the turnip.

Endive is wholesome, either boiled, or eaten raw with salad. It contains a bitter principle, and is slightly narcotic.

Beans, although both wholesome and nutritious, especially when young, yet are best suited for those persons who take much exercise in the open air. They are rather apt to disagree with persons of a sedentary habit. The tough coat that covers the bean is found to be very indigestible. Beans are usually eaten with bacon, in which case the fat of the meat tends to counteract many of the ill effects of the bean. In weak stomachs they are apt to produce indigestion and heartburn. The kidney, or French beans, when eaten young (as they usually are), are very digestible, and are more easily acted on by the stomach than any of the other legumes.

Peas contain much nourishment. According to Sir H. Davy, they consist of more than half of nutritious matter.

The watercress is cooling and antiscorbutic, and acts as a stimulant to the stomach, and promotes digestion.

Beet-root is very nutritious, and is a good antiscorbutic; but, probably from the large quantity of sugar it contains, is so apt to cause flatulence, that it is rarely employed as food for man. Much of the sugar used abroad is obtained from this root. It is found that one pound of sugar can be obtained from fourteen pounds of beet-root. This vegetable makes an excellent pickle.

The radish, although healthy and antiscorbutic, should, when it possesses an acrid and pungent taste, be carefully avoided by dyspeptic persons.

Asparagus is very digestible, so far as the heads are concerned, which is the only part eaten, and does not produce any acidity of the stomach. Artichokes resemble asparagus with regard to their digestibility.

Why Unripe Fruit should not be eaten without being previously Cooked.—Fruit that is in an unripe condition may be compared to "bad water laden with organic matters in a state of change." When such fruit is eaten, a species of fermentation is set up, which tends to injure the health. This result may, however, be prevented by previously exposing the fruit to the action of heat. This precaution is more especially to be adopted with fruit like the melon, which contains such large quantities—ninety-six per cent.—of water.

How Smelling-bottles are filled.—The most usual composition consists of equal parts of hydrochlorate of ammonia (sal ammoniac) crushed to a coarse powder, and carbonate of potash (pearlash), mixed together, and scented with any essential oil, such as lavender, lemon, rosemary, &c., or a combination of them all. When

exposed to the atmosphere, by the stopper being removed, the composition attracts moisture, and decomposition commences. The hydrochloric acid unites with the potash, while carbonate of ammonia is liberated. This action is increased by the application of a gentle degree of heat, such as holding the bottle in a warm hand. Occasionally the ordinary sesquicarbonate of ammonia (smelling salts) is employed for this purpose, either alone or scented. Sometimes concentrated acetic acid is used instead of the salts of ammonia. In this case, the bottle is previously filled with crystals of sulphate of potash, or pieces of sponge, which are afterwards moistened with the acid, previously scented with lavender, rosemary, or any other scent that may be preferred.

How to ascertain by means of Acid whether Articles are composed of Pure Silver or not.—This is done by allowing a drop of concentrated nitric acid (aquafortis) to fall on the surface of the metal. If the article is composed of pure silver, no discoloration will ensue; but, if alloyed with copper, the liquid will at once turn a bluish green. The reason is, that the pure nitrate of silver, produced by the action of the acid in the pure silver, is a colourless substance, while the nitrate of copper, which is formed when copper is present, is of bluish green colour.

The Method of obtaining Fac-similes of Engravings by Starch and Iodine.—The engraving we wish to copy is to be shut up in a warm and closed box, and exposed to the vapour from a capsule full of iodine, previously placed in it. The vapour produced by the evaporation of the iodine becomes absorbed by the printing-ink, in proportion to the thickness of the lines. When this is done, the engraving is to be laid on the upper surface of a sheet of smooth white paper, previously painted over with a solution of pure white starch boiled in water, the paper being afterwards dried. After the engraving has remained in contact with the sheet of paper for a short time, it is to be removed, when a blue fac-simile of the engraving will be found on the surface of the paper.

Something about Honey.—Although honey is always more or less laxative and nutritious, yet it varies in quality, according to the plants from which it has been procured by the bees who yield it. It sometimes happens, when the honey has been obtained from poisonous plants, that it produces heartburn, flatulence, and colic. The use of this substance is better suited for middle-aged and elderly persons than for the young.

QUILL PENS.

QUILLS employed for writing purposes are commonly obtained from the wings of the goose; but it is only the five outside feathers in each wing which can be used for this purpose. Although the stem of the first feather is the roundest and hardest, it is also the shortest. The second and third feathers are those which are most employed for making into pens. With good management, as many as twenty quills may be obtained from one goose during the year. Quills for making into pens are also obtained from the turkey. The stems of these quills are stronger than those of the goose, and are employed for pens required for engraving, and writing old English, and other purposes where a strong pen is required. The feathers of the swan are also much prized when a quill pen of great size and strength is desired. Quills from the crow are also employed where a very fine-nibbed pen is wanted for delicate writing or drawing.

When quills are first plucked the stem is found to be soft, tough, and opaque, instead of being hard, elastic, and transparent, as we find it in a quill pen. The quill is also covered, both inside and out, with a vascular membrane, by means of which the feathers receive the supply of blood necessary for their growth and nourishment, and which adheres tightly to it. Besides this, the fatty matter adhering to the quill would prevent the ink from flowing readily along it, if used in its natural state. The operation of rendering quills fit for use as pens is sometimes called "Dutching" them, owing to the method having been first employed by that nation. At one time Dutch quills were much valued from the care with which they were prepared, and all the fatty matters removed from them. The method originally employed by the Dutch was to press the quills into red-hot ashes. By this means all moisture and fat was got rid of, and the vascular membrane adhering to the quills detached. Great care has however, to be exercised in conducting this operation, for if exposed too long to the heat the quills would be injured.

An improvement on this method is to introduce the quills for an instant into a sand-bath heated to a temperature of 140° Fahr., and then rubbing them while hot with flannel, by which means it ceases to be greasy, and becomes hard, white, and transparent. Sometimes the barrel of the quill is introduced into a fire for a few seconds, and the quill is then drawn under the edge of a blunt knife, furnished with a handle by which it may be forced down, and fastened down at the other end by a hook and staple. The quill, while hot and softened by the heat, is drawn under the blunt edge of the knife, which, being brought down, forces it perfectly flat against a piece of iron heated to 350° Fahr. The round form of the quill immediately returns when the pressure is removed, and the barrel is then polished with the rough skin of the dog-fish.

Occasionally another method of cleaning them is adopted. The ends of the quills are introduced into water, which moistens them by capillary attraction. They are then exposed to the heat of burning charcoal, and, while hot, drawn under the edge of a blunt knife, which squeezes them flat and cleans them. The round shape is afterwards readily restored to the quills, by exposing them to heat.

During the elevated temperature to which the quills are subjected, whatever method may be employed for cleaning them, the inner membrane that lines the inside of the barrel of the quill becomes detached, shrivels up, and drops out when the quill is cut, while the outer membrane cracks, and readily peels off. The feather is now removed from the inner edge of the quill, and the quills sorted into rights and lefts, and tied up neatly into bundles of twenty-fives or fifties.

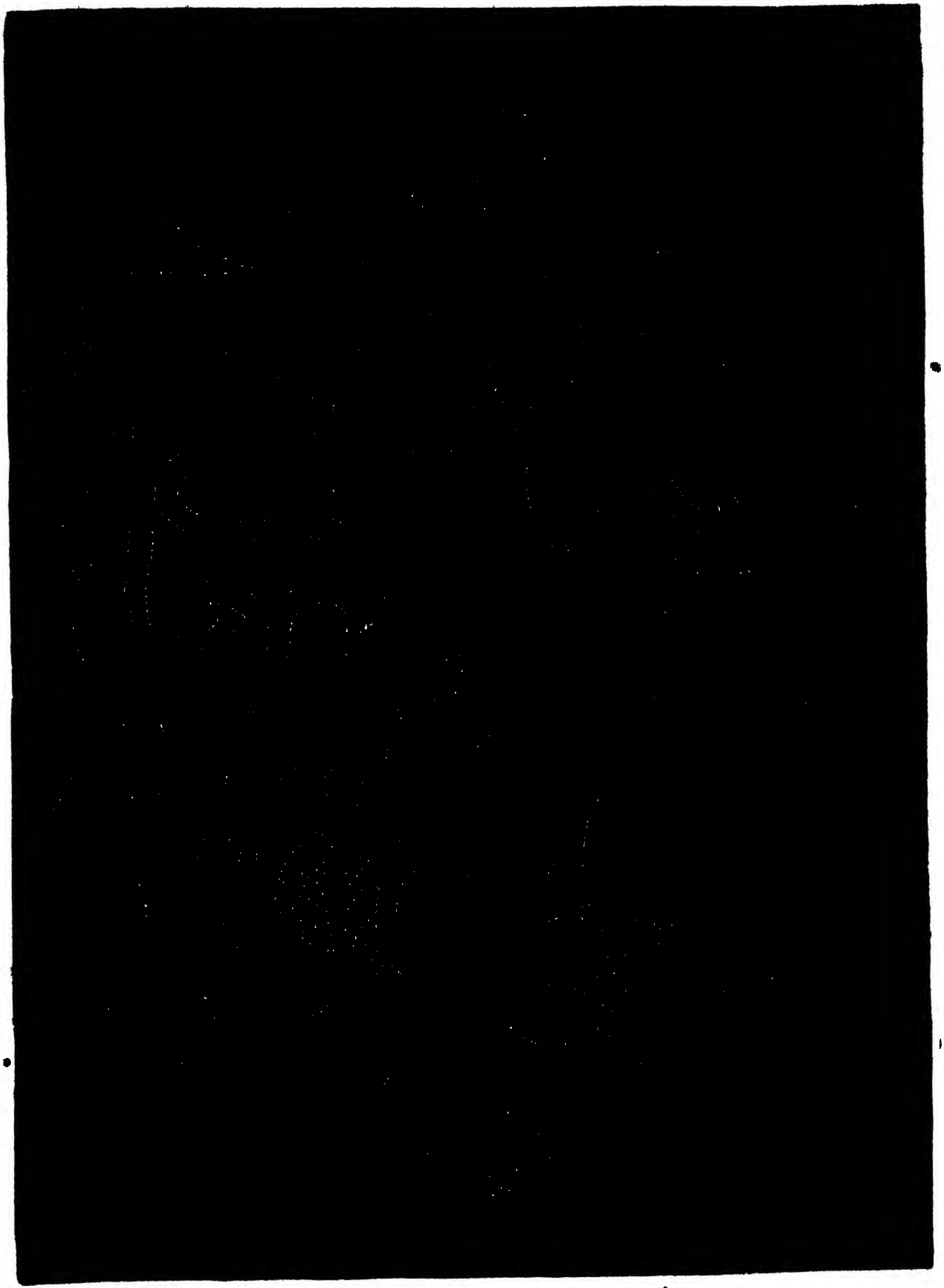
The quills are usually sold of three qualities, called primes, seconds, and pennions. The primes are the feathers that have the largest and strongest barrels; the seconds, those of inferior quality; while the pennions are the commonest kinds.

Quills may sometimes be had of a yellow colour: this is produced—to render them more attractive—by immersing them in nitric acid and water. Sometimes the method employed consists in placing the barrel of the quill in a decoction of turmeric previously to cleaning it.

Small pocket machines have occasionally been constructed for the purpose of cutting quill pens; but as they are expensive, apt to get out of order, and are not much used, we shall not stop to describe them.

The quill nibs commonly sold in the stationers' shops are thus made. The barrel of the quill is cut off and divided down the centre into two portions, and their edges smoothed off. The lengths are again divided into three or four portions, and the end of each piece is made into a pen.

FRECKLES.—To remove freckles, take one ounce of lemon-juice, a quarter of a drachm of powdered borax, and half a drachm of sugar; mix, and let them stand a few days in a glass bottle, then rub it on the face and hands occasionally.



POINT LACE PARASOL COVER—FIG. 1. (*See page* 279.)

HEALTH AND COMFORT IN THE SLEEPING-ROOMS.

II.

THE practice of constantly washing a bedroom floor is very objectionable. It should be frequently swept, and when water is necessary, let it be thoroughly scoured with soap and soda early in the day, and the windows opened to dry it, or a fire lighted, if needful, in winter. Sleeping in a damp room may bring on rheumatic symptoms. Many persons constantly have the bedroom floors wetted over, without scouring them. This does not clean them. It merely damps the dust which always accumulates between the boards, and is more likely to bring insects than prevent them, besides the risk of giving cold. Some means should always be taken to stop the draught which constantly comes under the doors of uncarpeted bedrooms, and is very frequently the unsuspected cause of chilblains in young persons, which occasion pain and often loss of time. No doubt uncarpeted rooms, as a rule, are healthiest; but some persons of delicate health and invalids require the warmth afforded by a complete carpeting of the sleeping chamber, for sometimes a strong draught comes up between the boards of a room. A case occurred of a young lady who suffered from a bronchial affection for some time. She slept in a room without curtains, and with a movable strip of carpet only. She was induced to entirely carpet her room, and add curtains to the window and head of the bedstead, and she entirely lost her cough and chest pain from that time. In very severe weather some firing is desirable in sleeping-rooms, especially for young children and old persons, and those of weak or susceptible constitutions. Many who are subject to chest affections or rheumatism will keep entirely free from any illness during winter, by simply having a fire in the bedroom and good blankets. It is not necessary to make the room unduly warm, but the fire should be lit an hour or more before the sleeper retires to the chamber, to prevent a chill. Many persons suffer chronic illness, and spend a fortune on doctors, merely from neglecting to take such care of themselves as the comparative weakness of their constitution may require. It is necessary to guard against undue indulgence, of course, and those who are well without would be foolish indeed if they did not let well alone.

Some persons, especially children, experience intense drowsiness in the morning, and appear to be almost unable to wake from the close atmosphere of the room. The window thrown open for three minutes only will entirely dispel the sort of lethargy that has overcome them. A careful mother of our acquaintance used to call her daughters herself every morning. Entering their room, she used to bid them cover their heads, and throw open the windows for a minute or two; then closing them, give the signal for rising. In summer weather it is always possible to bear the windows open on rising. In winter discretion must be used, as some persons take chill much more readily than others, and frequent colds bring on constitutional derangement.

It may seem that too much importance is attached to bed-making and bedroom comforts; but the fact is, that our nightly rest is ordained to restore the exhausted strength of the day. Deprive human beings of rest, and they lose health, strength, and even reason; disturb and render their rest but partial, and they suffer more or less in proportion. Many a person is unable to sleep at all upon an uncomfortable bed, and those who do sleep, dream, and wake weary and unrefreshed. After a time health flags, the doctor is consulted, drugs are taken, and expense incurred, perhaps all to no purpose. And all this simply because, partly from ignorance and partly from laziness, the mistress of the house has permitted her assistants to neglect their duties. Considering that we pass at least a third of our time in our bed-chambers, or even actually in our beds—for eight hours out of the twenty-four is not an extravagant time—it is absurd to think the convenience of such chambers is of no consequence. Another common ignorance is, to confound draughts and ventilation. Draughts are not fresh air. A draught, which is a current of cold air coming into a warmer apartment in a thin stream, levelled with all its force at one point, is sufficient to inflict injury on the part of the body it assails, but not sufficient to change the whole air in the room from foul to fair. Stop all the draughts, but admit plenty of fresh air at proper times and seasons.

It is a good plan to secure a two-inch webbing round all the doors of a house by means of a few tacks. Scarlet webbing is rather an improvement in appearance. The cost is about twopence per yard. Many persons have *gutta percha* fixed all round the crevices of the doors. This is more effectual than webbing, but it is also more expensive. A house is much freer from draught, and therefore more comfortable, if the landings are all covered with carpet in the modern way, instead of the stair-carpeting crossed upon them. To persons whose means are very narrow, we recommend the use of an inexpensive felt carpet for the purpose. They may cover a landing with this at a very low cost.

It is an excellent plan, before laying down carpets, to cut strips of newspaper, make a good paste with resin, and paste the strips entirely along all the cracks of the boards. When these are dry, cover the entire floor with brown paper, layer over layer. Very wide paper in rolls can be bought by the yard for the purpose. Some persons use old newspapers. The brown paper is the most effectual. This not only makes the room much more comfortable, being equal under the feet to a second carpet, but it wonderfully saves the actual wear of the carpet, which the roughness of the boards soon helps to cut out. Some persons, instead of nailing down carpets, sew round their edges a number of strong minute rings. Round the room a number of brass-headed nails are driven in, not quite flat, close to the skirting-board. The rings are looped over the nails. To make them correspond entirely, sew the rings on *one side* and at *one end* of the carpet. Lay the carpet down, and knock the nails in through the rings, fixing *one side* only. Knock in nails on the other side. Strain the carpet to meet it, put a pin as a mark where every nail comes, sew on the rings, and slip them over the nails. Then knock the nails through the rings at one of the ends, and treat the other end as you treated the second side. By the *sides* the longest way of the carpet is meant; the *ends* mean the narrow way. This is a useful way of fixing a bedroom carpet, because it can so easily be removed.

If insects are troublesome in a room, remove any carpets and curtains. Having opened and cleaned the bedsteads, remove the pieces, sweep the walls, and scour the floor with soft soap—chloride of lime and a good half-pound of salt in each pail of water. Salt is exceedingly useful in banishing or killing nuisances of the kind implied. If this is not effectual, and the room is much infested, and it can be spared for a couple of nights, burning sulphur in it (first removing all ornaments and gilt-work) is almost sure to be effectual. But great care must be taken very completely to ventilate it afterwards, and not kill its human occupants as well as the intruders against whom war is waged. If this fails, and they are in the walls, those must be re-papered and washed with lime. If a bedstead only is in fault, iron or painted wood may be re-painted. Unless in cases where the walls are a harbour, and they have been allowed to increase immensely, they can almost always be entirely stamped out by unremitting search every night of the bedstead, bedding, and walls, by rising again an hour after retiring and

darkness, when they will make their appearance, and carefully destroying every one that can be found. In the case of fleas, search in the same way in the blankets, and use salt, lime, and soft soap for the floors. Let all drapery, and as much carpeting as possible, be banished till they have disappeared. The reward is amply worth the pains and perseverance. With ordinary household cleanliness, such things do not appear; but it is often the misfortune of tenants to enter a house after others who have laid up a store of discomfort for their successors.

BOOTS AND SHOES.

II.

As we propose to make all our remarks as practical as possible, and shall endeavour to apply all we say to practice so far as our knowledge will permit, we proceed to point out the application of the knowledge we have gained in our consideration of the bony structure of the foot.

The most important portions for consideration are those parts of the foot where it bends, because, if sufficient space be not given for such bending, one of two things must arise—either the boot must give way or the foot must suffer. We should imagine the failure among measurers or boot-makers in this particular of breadth must be very general, seeing the admirable mechanism of split last and screws, which is constructed at considerable expense, for the purpose of stretching a boot; which power of stretching, after all, is very limited. The present system of measuring for a boot or shoe seems to us to be deficient in this special particular—that when a measure is taken the foot is generally held up. In this passive state the foot is really much smaller than when rested on—it then being spread out—and still requires a certain amount of greater space to admit of free motion, so that the measure should be taken with the foot on the ground, and the person measured treading on it. If he has tender feet and wants an easy fit, he should be requested to press hard on his foot when the measure is taken. The measure which is now in use is totally inapplicable to this purpose, and we might suggest another kind of measure, on which the person can tread while he is being measured, and by which not only the length but the width of the sole and heel, and also the position of the bend of the foot, may be accurately ascertained, and the last made up exactly in accordance with the proportion of the foot.

Another most important consideration is the insensible perspiration of the foot. This goes on to a much greater extent than many persons imagine, and is caused by the greater amount of surface the foot has. This will be readily understood if we suppose an ordinary boot to be taken, and after having been ripped up the front and down the back, it be allowed to turn over the sides of the sole. The space covered will fairly represent the surface of the foot, and be, in an ordinary-sized man's foot, not less than 100 square inches. From the whole of this surface there constantly exudes a flow of insensible perspiration. If, resulting from wet feet, this perspiration is checked; or if, from cold, the circulation is retarded; health and comfort can no longer be secure until the whole of this 100 square inches of moisture-giving surface is again in a condition to give out its usual amount of perspiration.

Many persons also complain very much of having cold feet. This results in many cases from the perspiration which exudes being confined within the shoe. Leather, when in its natural unprepared state, has various paradoxical capabilities. This is more especially the case with the youngest calf-skin: it is perfectly porous, enabling the perspiration to pass outwardly through its pores; it is also perfectly waterproof, resisting the action of rain and external moisture. These remarks do not apply in the same degree to Cordova leather, or horsehides, or to varnished or patent leathers, or to boots and shoes, the pores of the skin of which have been filled up by constant blacking and polishing. It must, then, be laid down as a rule, that any who have cold feet should first see that their boots or shoes are of a nature to allow the insensible perspiration to exude, and in the next place resort to sufficient walking exercise to keep the blood in the vessels of the feet in perfect circulation. We believe that, if these directions be faithfully complied with, but little complaint will be made respecting cold feet.

We next proceed to a consideration of children's and youths' boots and shoes. With the preceding remarks little will be left to say on this subject; only intensify what we have said to a considerable extent, and add to these the softer condition of the foot in infancy, and you will be in a condition to judge of the kind of boots and shoes which should be worn. So great is the effect produced on the gait by a particular kind of foot-clothing, that the following illustrations will not only be curious, but perfectly illustrative in their character. Chinese ladies have their feet converted into hoofs by a constant bending and cramping of the foot from infancy to maturity. It is said that in America a New Yorker and a Philadelphian may be known by their method of walking, from the fact that the Philadelphian from his earliest years has to make his way over round pebbly stones.

In many parts of England where the soil is stiff, our male peasantry are irrecoverably knock-kneed, in consequence of having to wear heavy boots; and the muscles of the leg are not strong enough to resist the heavy weight of the soil and boots together at one end of the leg—adding three or four pounds on to every step; and we need not be surprised that the natural spring of the tendon should be too weak to resist so much force.

Such, then, are the results of an improper pressure or strain upon the feet and legs during infancy. In this period shoes should be discarded as long as possible, and boots only worn in cases of weak ankle-joints. Indoors, the lightest covering or none; outdoors, the sole pliable, the leather soft, and the boot or shoe free and pliant about the top of the leg, the instep, and the toes. The boot should also be sufficiently long to admit of the longitudinal expansion of the foot.

These conditions apply equally to all kinds of boots and shoes; but there are certain particular manufactures which we propose to notice, and we shall commence our next paper on this subject with some special considerations of ladies' boots.

ECONOMICAL USES OF THE CHESTNUT.

The use of chestnuts is far more general on the continent of Europe than in England. In the south of France this fruit serves, in a great measure, as a substitute for potatoes and bread; in the north of Italy, also, and in Paris and Brussels, chestnuts are used for thickening soup; and by the appearance they make in the grocers and greengrocers' shops, they would seem even, in Brussels, to be as largely consumed as potatoes in England and Ireland.

There are two kinds of chestnuts, the sweet chestnut and the horse chestnut—or, more correctly speaking, there are two trees known by those names—but one is the sweet chestnut (*Castanea vesca*), the other the horse chestnut, which belongs to the natural order of plants (*Hippocastaneæ*), and is the *Æsculus hippocastanum* of botanists, differing in everything from the sweet chestnut, except in the unimportant circumstance of the fruit of both trees being prickly, and this is really only an outward appearance; therefore the so-called seeds of the sweet chestnut, *Castanea*, are seed-vessels, coverings of

the seed, while the parts which in the horse chestnut correspond with these are really seeds.

Castanea vesca is the sweet chestnut, or Spanish chestnut. It bears long, glossy, notched, sharp-pointed leaves; clusters of pale-greenish blossoms in long spikes, with no corolla, no petals, like those of the beautiful horse chestnut; the fruit consisting of a roundish prickly husk, or involucra, technically called a "cupula," and analogous to the beard of the filbert, in which are contained one or more dark-brown, ovate, sharp-pointed nuts, each of which conceals a large single seed. These seeds contain a large quantity of nutritive, starchy matter, of a sweet flavour, on which account chestnuts are extensively used as an article of food in countries where the trees abound; and in the southern parts of France, Spain, Italy, and adjacent countries, sweet chestnuts are eaten either raw, roasted, boiled, or ground into flour; but the chestnuts thus used and exported to other countries are cultivated varieties of the wild chestnut, the nuts of which are not so large or sweet.

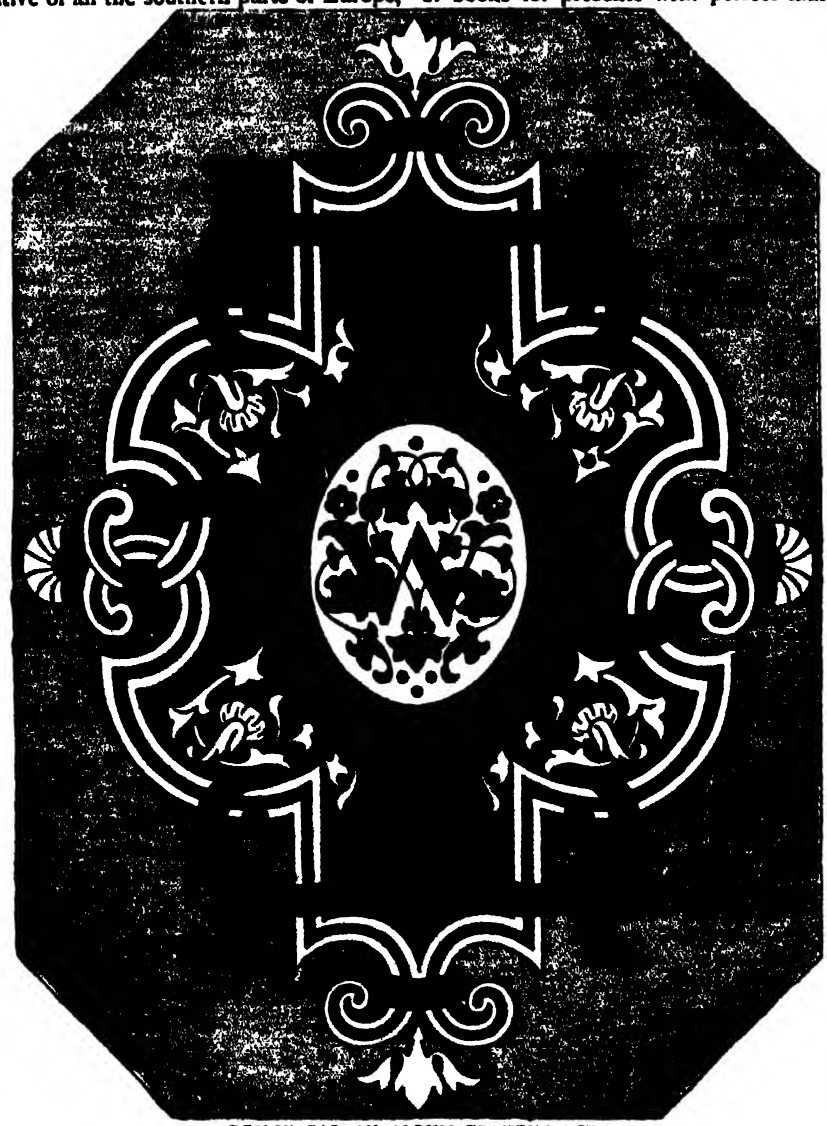
The tree is a native of all the southern parts of Europe, extending eastward to the Caucasus, beyond which it hardly passes into Asia. In the mountainous districts of North America it grows wild abundantly, and, in many instances, to a very large size, while whole forests of this beautiful tree are found near Mount Etna; and thus this elegant tree becomes abundantly useful, since its wood is found to make good timber for building, and is well suited for mill-timber, or for water-works, piles, and wine-casks, also in the construction of bridges, as it has the power of resisting the influence of water.

In the south of France and the north of Italy the nuts serve for food, in place of our bread and potatoes. Those laid by for winter use fall from the trees. The nuts sent to Paris and other places, for immediate use, are beaten off, the husks are removed by pressure (in some villages by the men with their wooden shoes), and the nuts are in France dried by the air, by the sun, by a kiln, or by partial boiling, and thus preserved for several years; the French make of them many dishes.

A cake called *galette* is made from chestnut meal, milk, salt, butter, and eggs, and baked on a hot stove. A thick porridge, called *polenta*, is made by boiling chestnut meal in water or milk, stirring it till it forms a thick paste, something like Scotch oatmeal porridge. *Marron-glacé* is made by dipping the nuts, peeled, into clarified sugar, and then drying them. They are also frequently cooked by boiling them in water with celery or sage; and in many ways this nut might evidently be made of service to a greater extent than it is. In times of famine or scarcity of corn, when bread is dear, many little contrivances would render the sweet chestnut a good substitute for our English bread.

DESIGN FOR AN ALBUM FRONTISPIECE.

It used once to be the fashion to ornament the fly-leaf of books for presents with perfect marvels of flourishes and ornamentation. Like many other old customs, this has gradually fallen into disuse, but there is no reason why it should not be partially resuscitated; for very naturally the value of a present is considerably enhanced if we know and have ocular evidence of the fact that the donor spent his time in endeavouring to please. This mode of ornamentation, besides, affords to those who have leisure at command an agreeable amusement and free scope to their individual artistic tastes.



DESIGN FOR AN ALBUM FRONTISPIECE.

We subjoin a specimen for a beginner, which is so simple as to require but little explanation. The outline is first sketched in pencil, the black part filled in with Indian ink, and then shaded with sepia, and the white left bank. The outer edges are gone over again with a mathematical pen, and the thing is done, well repaying the small amount of labour expended. The design may be employed for other modes of ornamentation.

HOUSEHOLD DECORATIVE ART.—XLIII.

ORNAMENTAL FLOWER-POT STANDS.

FOR covering or ornamenting the red earthenware flower-pots in which plants are grown, various expedients are already in use; but none of them appear so simple and effective as some which are much employed by the ladies of Paris and other Continental cities, and of which we give two illustrations.

These flower-pot stands are made of old cigar-boxes; if the cigar-box happens to be a square one, which is sometimes the case, so much the better: but if not, the cigar-box is easily pulled to pieces, the thin board of which it is composed cut to the required size with a sharp knife, the parts fastened together again with brads as before, and the corners new bound by pasting strips of gilt or coloured paper over them. As shown in our illustration (Fig. 1), the stand may also be improved in appearance by gluing four small balls of turned wood upon the corners, the lower ones to serve as feet.

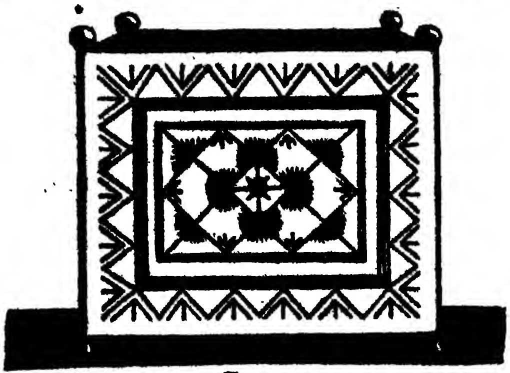


Fig. 1.

The unpolished mahogany of which cigar-boxes are made, forms a very agreeable background to this peculiar method of decoration employed, which we are about to describe. Holes are bored through the sides of the box with a gimlet; and if desired to render the pattern more intricate, smaller ones can also be bored with a bradawl, and through these holes German wool is worked with a needle. In this manner a great variety of rectilinear patterns may be formed; all others being, of course, impossible; and by selecting the colours with judgment admirable effects may be produced. It is usual to conceal the larger holes by small bosses or rosettes of wool, and fastening them on the inner side at the completion of the work.

This decoration may also be employed for other purposes; and in Fig. 2 we show the side of a box intended for the uses of the dressing-table.

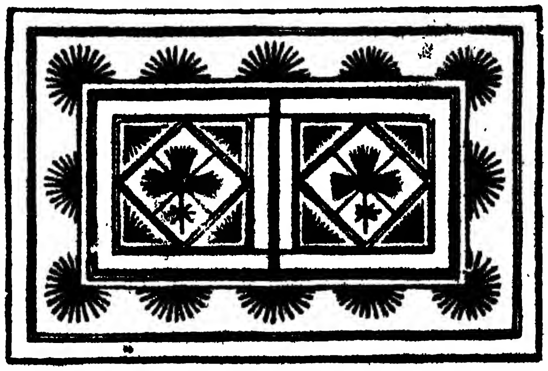


Fig. 2.

A single panel of this latter design might also be made use of for a flower-pot stand. In Paris we have seen this cigar-box work further enriched by the addition of silver-plated or brass-headed nails; and other simple ornamentation readily suggests itself.

BUTTER MAKING AND PRESERVING.

THE making of butter requires great care and attention. Butter is the fat part of the milk of the cow, which also consists of the curd and the whey. The comparative value of the milk of different cows, or of the same cow, fed on different pastures, is estimated chiefly by the quantity of butter contained in it. Cleanliness is very important in all dairy-work; the utensils should be kept clean by scalding with boiling water, and the hands be washed before each milking. A cool hand is desirable in making up butter.

There is an old rhythmical rule how to choose a cow—

"She's long in her face, she's fine in her horn,
She'll quickly get fat without cake or corn;
She's clear in her jaws, and full in her chine,
She's heavy in flank, and wide in her loin;
She's broad in her ribs, stout in her rump,
A straight or flat back, with never a hump;
She's wide in her hips, and calm in her eyes,
She's fine in her shoulders, and thin in her thighs;
She's light in her neck, and small in her tail,
She's wide in her breast, and good at the pail;
She's fine in her bone, and silky of skin—
She's a grazier's without, and a butcher's within."

Varieties of Churns.—The churn most in use is the plunge or upright. The barrel-churn is more easily worked, but it is said not to extract the butter as well as the upright churn. A churn is made in America which brings the air rapidly and at a certain temperature to act upon the cream so effectively, that it has made five quarts of cream into five pounds and a half of butter in the short space of eight minutes: it is worked with a winch. In one butter-making machine, the butter as it is taken out is put into a receptacle in the centre, and passed through apertures in the bottom by means of a screw, which very ingenious contrivance saves hand-working. The Bishop of Derry invented an apparatus which in principle resembles the American churn. It does not *churn* the butter, but by a forcing-pump passes a current of air through the cream, by a glass tube connected with the air-pump. The apparatus is of tin, and fits into another tin cylinder provided with a funnel and stopcock, so as to heat the cream to the necessary temperature. The pump is worked by a winch, and the milk is not moved by a dasher, but the air is brought into close contact with the cream, so as to convert it all into butter. It has, in an hour and three-quarters, produced twenty-six pounds of butter from eleven gallons of cream. In summer it may be necessary to immerse the plunging-churn about a foot deep in cold water, or to throw water over the barrel-churn. In winter add a little warm water. The churning is continued until the particles of butter appear united at the bottom of the churn, and form a solid mass, which is removed into another vessel, and the buttermilk set aside for the pigs.

A new French churn has these advantages:—1. The milk is put in at once from the cow, without standing for cream. 2. After the butter is formed—in a few minutes—the milk is not soured, not being buttermilk, and can be boiled without congelation. 3. This churn is not subject to get out of order, and may easily be kept sweet.

In churning, the best temperature is between 64° and 68°. The loss is much less when cream is churned instead of milk, and the most suitable temperature for obtaining from cream the greatest amount of butter in the shortest possible time is between 57° and 60°.

To Make Butter.—As the cream is collected it should be placed in a deep, covered vessel, and stirred with a

stick or spoon whenever a fresh quantity is added. The object of this is to produce a slight acidity, by means of which churning is much hastened. If the cream from each milking has been kept separate, it may remain from two to four days in warm weather without being injured; but if sweet cream be mixed with that which is sour, they ferment, and soon become putrid if the churning is delayed beyond three days. This may, in some degree, be prevented by the stirring, but it is generally considered best to keep the cream from each milking by itself. A very simple means of showing the proportion of cream in milk consists of a glass tube, graduated; the tube, being filled with new milk, the proportion of cream it contains is denoted by the height to which it rises on the surface of the milk, on comparing it with the marks on the tube. Cream may be kept for twenty-four hours by scalding it, and if sweetened with pounded loaf sugar it may be kept two days. If milk be turnip-flavoured, dissolve in water a small quantity of powdered nitre, and put a wine-glassful of this solution to every ten quarts of milk, to be placed in the pail before commencing to milk.

The Highland and Agricultural Society of Scotland has published the following results, derived from its experiments in butter-making:—1. That the addition of some cold water facilitates the process, or the separation of butter, especially when the cream is thick and the weather hot. 2. That cream alone is more easily churned than a mixture of cream and milk. 3. That butter produced from sweet cream has the finest flavour when fresh, and appears to keep longest without acquiring rancidity; but the buttermilk so obtained is poor, and small in quantity. 4. That the scalding of the cream, according to the Devonshire method, yields the largest quantity of butter, which, if intended for immediate use, is agreeable to the palate, and readily saleable; but if intended to be salted, is most liable to acquire, by keeping, a rancid flavour. The process of scalding is troublesome, and the milk, after the removal of the cream, is poor, and often would be unsaleable, from the taste it has acquired from the heating. 5. That churning the milk and cream together, after they have become slightly acid, seems to be the most economical process on the whole, because it yields a large quantity of excellent butter, and the buttermilk of good quality. 6. That the keeping of butter in a sound state appears to depend on its being obtained as free from uncombined albumen, or caseine and water, as it can be, by means of washing and working the butter when taken from the churn.

It is well known that cream may be converted into butter simply by being buried in the ground. In Normandy and some other parts of France, the process is as follows:—The cream is placed in a linen bag, which is made secure, and placed in a hole in the ground, about a foot and a half deep. It is then covered up and left for twenty-four hours. When taken out the cream will be very hard, and is beaten for a short time with a wooden mallet. A glass of water is then thrown upon it, which causes the buttermilk to separate from the butter. In winter, when the ground is frozen, the operation is performed in a cellar, the bag being well covered up with sand. Some persons place the bag containing the cream within a second bag, in order to prevent any taint from the earth. This system saves labour, and is stated to produce a larger amount of butter than churning, and it is of excellent quality.

A French chemist proposes the following method:—Pour the cream into the churn; pour in gradually, and stirring it, a small quantity of milk of lime to destroy the acidity; churn the cream until the butter is separated, decant the buttermilk, and when the butter is sufficiently collected remove it from the churn. By this method, it is stated, more butter is obtained, capable of being preserved for a longer time than by the usual process. The buttermilk loses its sharp taste and laxative properties, and is very good. By washing with lime-water, butter has been restored which could only previously be used for cooking.

Clotted Cream.—For this cream, peculiar to the West of England, let the milk stand in a bell-metal vessel four-and-twenty hours; then place it over a small wood fire, so as to warm it very gradually. When it is near simmering, strike the vessel occasionally with the knuckles, and very carefully watch it. As soon as it ceases to ring, or the first bubble appears, a slight agitation appears previous to boiling, and the secret of the preparation is that this simmering should not proceed to *boiling*. Then remove the milk from the fire, and set it by for twenty-four hours more. At the end of this time all the cream will have arisen, and be thick enough to cut with a knife. It should be then carefully skimmed off. This is a luxury with coffee or with tarts, and Devonshire strawberries and cream need no praise. The dairy people in these districts say that the above is the most profitable way of treating the milk; that five pounds of butter can be obtained from a given quantity, where only four would be yielded by the ordinary method; and that the butter is more pleasant to the taste, unless it has acquired a smoky flavour. The milk is proportionally impoverished, but skim-milk cheese must be abandoned, or if a little is made, it is very poor and tasteless.

Dutch Butter is very carefully salted, the salt being made by slow evaporation, and perfectly crystallised. The salt is immediately mixed with the butter—three to five pounds for a firkin of fifty-six pounds. The following mixture is very superior to salt alone:—Half an ounce of dry salt, powdered finely; two drachms of sugar, and two drachms of saltpetre, for every pound of butter. The butter being quite dry, is pressed into the cask, a small layer of salt having been first put on the bottom. Every addition is carefully incorporated with the preceding portion. When the cask is full, some salt is put over it, and the head is put on. The Dutch have hitherto had the pre-eminence in butter-making, but there is no good reason why the rich pastures in England and Ireland should not produce as good butter as those of Holland, if sufficient attention were paid to the care of the dairy, to the purity of the salt used, and especially to cleanliness, for which the Dutch are so remarkable.

In parts of Holland, Scotland, and Ireland churning the milk and cream together is said to produce a greater abundance of butter from the same quantity of milk. In the Dutch method the milk is put into deep jars in a cool place, each *meal*—or portion milked at one time—being kept separate. As soon as there is a slight acidity, the whole is churned. When the butter begins to form in small kernels, the contents of the churn are emptied on a sieve, which lets the buttermilk pass through; the butter is then formed into a mass. In Ireland the process is very similar, but the milk is allowed to arrive at a greater degree of acidity, which is a defect. In Scotland the milk is allowed to cool for six hours, and then put into a clean vat; it is then covered and allowed to get sour till it coagulates at the top, which must not be broken till the butter is churned. When the clotted milk is put into the churn, warm water is added to raise the temperature to 70° or 80°, the whole being gradually stirred in. The butter is said to be fully equal to that made from cream alone.

Epping and Cambridge Butters have long been famous. The superiority of the Epping is thus explained:—The cows which produce it feed during the summer in shrubby pastures, and the leaves of the trees and wild plants which there abound are supposed to improve the butter; but a good authority says:—"The Epping dairywomen consider a small portion of acid, either natural or artificial, necessary to insure a good churning, and for this purpose they mix either sour cream with the sweet, or they employ lemon-juice, and occasionally rennet. This practice [illegible]

situation on dairy farms that possess pasture of a short, sweet character; but where the herbage is coarse, or the cows feed on roots, or other succulent artificial food, the fresher the cream is churned, the more valuable will be the butter. The Cambridgeshire butter is produced from cows that feed one part of the year on chalky uplands, and the other on rich meadows or fens, which alternation is thought to explain its excellence. The London dealers, having washed and repacked Irish butter, often sell it as Devon and Cambridge butter. In Cambridgeshire butter is made up into rolls a yard long, and passed through a ring, for the convenience of dividing it into small portions without the trouble of weighing; hence the butter is said to be sold by the yard.

American Butter.—In the United States there is much speculation in the butter trade, which does not benefit the community. The great preponderance of poor butter over good is owing mainly to the ignorance and carelessness of the majority of those who have the management of dairies, together with the aversion of American women to enter upon what they consider the drudgery of butter-making.

"It has long," says a New York Journal, "been demonstrated that the dasher-churn is not the fittest to collect all the butter from the milk, and that the 'up-and-down' movement is the only proper churn. This requires much hard labour. The increasing facilities for conveying milk to New York, and the fact that farmers realise more by selling it at four cents per quart than butter at thirty-five, has a tendency to keep up the price of the latter. One word about good butter. It should be of a golden yellow hue, without a drop of moisture visible, sweet to the taste, and not too salt. That which has a smeared appearance is either adulterated or improperly made. . . . The cheating is not all done in New York. Farmers sometimes resort to the pickling process, and drown the contents of the tub in two or three pounds of extra brine. A class of dealers mix in lard and salt with cheap rancid butter. Buying a pound of butter without examination, except from the most reliable men, is attended with about as much certainty as buying a horse."

To Sweeten Butter of a disagreeable flavour. Put two and a half drachms of carbonate of soda to every three pounds of butter. In making fresh butter, the soda is to be added after all the milk is washed out, and it is ready for making up. The disagreeable smell and flavour are produced by an acid which the soda neutralises. This acid is generated by a certain fodder; by keeping the cream too long before it is churned; and, too often, by the dairy utensils not being kept clean.

To Pot and Store Butter.—Having taken it warm from the churn, put it into a clean tub, and with cool hands work the milk out of it. Then mix up with the butter half the quantity of salt, and next morning add the other half of the salt. It should then be put into pots. The proportion of salt is half a pound to fourteen pounds of butter. Or mix together equal quantities of saltpetre, common salt, and loaf sugar, and take one ounce of the mixture for each pound of butter, free from buttermilk. This mixture should be well worked in, and a little sprinkled upon each layer of butter as it is placed in the crock, to be closely tied over when full. In Switzerland, butter is prepared for cookery by melting it in a copper at a gentle heat, and stirring it for two hours, when it is set to cool, and put into a crock; any whitish cheesey settlement should be removed. No person should work the butter who has not a very cool hand, and the less it is handled the better.

To Preserve Butter Sweet for any length of time in a fresh condition, all that is necessary is to boil it in a pan till the water is removed, which is marked by the cessation of violent ebullition. By allowing it to stand for a little the curd subsides, and the oil may then be poured off, or it may be strained through calico or muslin into a bottle, and corked up. When it is to be used it may be gently heated and poured out of the bottle, or cut out by means of a knife or cheese-gouge. This is the usual method of preserving butter in India (ghee), and also on the Continent, and it is rather remarkable that it is not in general use in this country. Bottled butter will thus keep for any length of time, and is the best form of this substance to use for sauces.

In hot weather butter may be kept sweet by letting it down a well twenty-five or thirty feet, placed in a basket suspended on the rope; and cream, for the same purpose, may be let down in the evening before churning. It is drawn up early next morning and immediately churned. It will occupy about the same time as in winter, and the butter be of like consistency. The temperature is to be ascertained by a thermometer.

Or, instead of using common salt, take a mixture composed of one part of sugar very finely powdered, one of sal prunella, and one of purified sea-salt. Put an ounce of this mixture to each pound of butter, and well work it in, and put the butter into crocks, to be tied over with bladder. A *small* portion of salt is invariably used in making "fresh butter," with the view of keeping it; whereas the butter would keep better without it. All persons are aware that a sufficient quantity of salt will preserve butter for many months, in which case it comes under the denomination of "salt butter;" but every one is not aware that a small quantity of salt tends to putrefaction in all animal matter.

To Preserve Butter without Salt.—Set the butter in a clean pan over the fire to melt very gently, not to boil; all the watery particles being evaporated, the curd, which is one cause of the butter becoming rancid, falls to the bottom. The clear butter is then poured into a crock, and covered over with paper, and a bladder tied over to exclude the air. When it is cool, it resembles hog's lard. It has lost some of its flavour, but is much superior to salt butter for culinary purposes, and especially for pastry.

Adulteration of Butter is practised to a great extent. One of our analytical chemists has found in examining London butter a "nasty scum." Much of it appears to be made of a pure, rich, and buttery grease, which is extracted from Thames mud. A sample obtained from the mud at Battersea was of a yellowish tint, very like butter in appearance, taste, and smell. The manufacture of this grease from Thames mud is very extensive, and large quantities of it are shipped to Holland, where much of our "fine dairy butter" is manufactured. Butter is also adulterated with American lard, which is in use for many purposes for which salt, and even fresh butter has been employed; and this lard takes the place of butter in families of very moderate means. Another heartless and wicked fraud is practised in the cheap kinds of butter. Flint stones are ground into a soluble substance, which, when dissolved in water, becomes a stiff jelly, which is mixed with butter, to which fresh salt and colouring matter are added. The product resembles a very good-looking, dairy-made butter, but it has not the firmness or bright appearance of genuine butter, and, of course, is devoid of its richness and wholesome qualities.

DEATH IN THE HOUSEHOLD.

II.

In addition to the registration of death and the selection of a place for burial, it is advisable as soon as possible to arrange with an undertaker about the character and cost of the funeral. To enable our readers to do this more readily, we shall give them as briefly as possible an insight into the manner in which the trade is sub-divided, and also the cost of burial.

Besides the persons who make the coffin, there are

the coffin-furniture manufacturers, the funeral robe, sheet, and ruffle makers, the funeral-carriage masters, and funeral feather-men. All these supply at first-hand the furnishing undertaker, who, in his turn, supplies the trade and the public. It is not usual for one house to represent all these different departments.

Besides the regular undertakers, there is a large class of men who are mere agents, and only call themselves undertakers, and who, when they chance to obtain an order for a funeral, transmit it to a regular undertaker for execution, at the same time causing the relatives to pay considerably more than if they had gone themselves in the first place to the person who really makes all necessary preparations and performs the funeral. A little trouble is, however, sometimes saved in return for the increased expenditure.

With the view to give every facility for choosing the kind of funeral, it is customary for undertakers in a large way of business to give their customers a book containing particulars of the various classes of funerals, and with the prices printed at which they can be performed. With a view to afford this information, we will now lay before our readers particulars of funerals at various charges, from £3 5s. to £53, the prices marked being those charged by an extensive London undertaking firm, which guarantees that every article is of the best workmanship and quality, the attendants well trained and attentive to their duties, and all funerals conducted with the strictest possible attention to respectability and decorum. We will commence with funerals for adults.

Funeral costing £3 5*s*.—Patent carriage, with one horse; smooth elm coffin, neatly finished, lined inside, with pillow, &c.; use of pall, mourners' fittings, coachman with hat-band; bearers; attendant with hat-band, &c.

Funeral costing £5 5*s*.—Hearse, with one horse; mourning coach, with one horse; stout elm coffin, covered with fine black, plate of inscription, lid ornaments, and three pairs of handles, mattress, pillow, and a pair of side sheets; use of velvet pall; mourners' fittings, coachmen with hat-bands and gloves; bearers; attendant with silk hat-band, &c.

Funeral costing £6 6*s*.—Hearse, with pair of horses; mourning coach and pair; strong elm coffin, covered with black, plate of inscription, lid ornaments, and three pairs of handles, mattress, pillows, &c.; use of velvet pall, mourners' fittings; coachmen with hat-bands and gloves; bearers; attendant with silk hat-band, &c.

Funeral costing £8 15*s*.—Hearse and pair of horses; mourning coach and pair; velvet covering for carriages and horses; strong elm coffin, covered with fine black, plate of inscription, lid ornaments, three pairs of cherub handles and grips, and finished with best black nails, mattress, pillow, and side sheets; use of silk velvet pall; two mutes with gowns, silk hat-bands, and gloves; four men as bearers, and two coachmen with cloaks, hat-bands, and gloves; use of mourners' fittings; and attendant with silk hat-band.

Funeral costing £14 14*s*.—Hearse and pair of horses; mourning coach and pair, fifteen plumes of black ostrich-feathers, and complete velvet covering for carriages and horses; stout inch elm coffin, with inner lid, covered with black cloth, set with two rows all round of best black nails; lead plate of inscription, lid ornaments, four pairs of handles and grips, all of the best improved jet and bright black; tufted mattress, lined and ruffled, and fine cambric winding-sheet; use of silk velvet pall; two mutes with gowns, silk hat-bands, and gloves, eight men as pages and coachmen, with truncheons and wands, crape hat-bands, &c.; use of mourners' fittings; and attendant with silk hat-band, &c.

Funeral costing £23 10*s*.—Hearse and four horses, two mourning coaches, with pairs, nineteen plumes of rich ostrich-feathers, and complete velvet covering for carriages and horses; strong inch elm shell, covered with [illegible]; tufted mattress, lined and ruffled with [illegible]; fine cambric winding-sheet, inch elm case to [illegible] above, covered with fine black cloth; lead plate of inscription, lid ornaments, four pairs of shield handles and grips, and furnished with two rows all round of best [illegible]; use of silk velvet pall; two mutes with gowns, silk hat-bands, and gloves; eleven men as pages; and coachmen with truncheons and wands, crape hat-bands, &c.; use of mourners' fittings; and attendant with silk hat-band, &c.

Funeral costing £30.—Hearse and four horses, two mourning coaches, with pairs, nineteen plumes of rich ostrich-feathers, complete velvet covering for carriages and horses, and an esquire's plume of best feathers; strong elm shell, with tufted mattress, lined and ruffled with superfine cambric, and pillow; full worked fine cambric winding-sheet outside lead coffin, with inscription plate and solder complete; stout inch elm case, covered with superfine black cloth, set with three rows round, and lid panelled with best black nails; registered lead plate of inscription, lid ornaments to correspond, and four pairs of handles, and grips all of the best imperial black; use of the best silk velvet pall; two mutes with gowns, silk hat-bands, and gloves, &c.; twelve men as pages, feathermen, and coachmen, with truncheons and wands, silk hat-bands, &c.; use of the mourners' fittings; and attendant with silk hat-band, &c.

Funeral costing £53.—Hearse and four horses, two mourning coaches with fours, twenty-three plumes of rich ostrich-feathers, complete velvet covering for carriages and horses, and an esquire's plume of best feathers; strong elm shell, with tufted mattress, lined and ruffled with superfine cambric, and pillow; full worked glazed cambric winding-sheet, stout outside lead coffin, with inscription plate and solder complete; one and a half inch oak case, covered with black or crimson velvet, set with three rows round, and lid panelled with best brass nails; stout brass plate of inscription, richly engraved; four pairs of best brass handles and grips, lid ornaments to correspond; use of silk velvet pall; two mutes with gowns, silk hat-bands and gloves; fourteen men as pages, feathermen, and coachmen, with truncheons and wands, silk hat-bands, &c.; use of mourners' fittings; and attendant with silk hat-band, &c.

What adds very much to the cost of a funeral is the amount of "new goods," such as kid gloves, scarfs, hat-bands, &c., used, and which are not included in the tariff. In a large funeral, very often new crape and silk scarfs and hat-bands are used, as well as kid gloves, and retained by the mourners, the crape scarfs and band being worn by the relatives, and those of silk by the friends.

Even in those cases where new fittings are not used and kept by the mourners, but those lent by the undertaker are employed, it is customary to give "[illegible] his fee in kind) to the officiating minister. [illegible] the officiating minister to be the clergyman [illegible] cemetery then he has fittings given him, as a [illegible] on large funerals. If, however, you inter in the [illegible] of the metropolis), at a parish church, it [illegible] that the clergyman is more or less known to the family, and for that reason he generally receives [illegible]. In [illegible] cases where the family minister officiates, he [illegible] has fittings given him. In the case of a [illegible] a wealthy family he is supplied with a [illegible], but where economy is studied, [illegible] band and gloves, or even the [illegible] great families the doctor is [illegible], but among the middle classes, although [illegible] often attend the funeral as formerly, yet in most [illegible] has something sent him in the way of complimentary mourning. To friends at a distance it is an old-fashioned custom, now nearly obsolete, to send a pair of gloves, and a memorial card may accompany them.

POINT LACE WORK.—XVII.

PARASOL COVER (*continued from p. 270*).

The second portion of the parasol cover is given in this number, and the design will be found to fit exactly to the first part already published, so that no join will be required in the braid when working them. We add two open stitches, which may be freely introduced with those we have described in former chapters, and for which we proceed to give directions. For Fig. 3, commence

Fig. 3.

PARASOL COVER.—FIG. 2. (SECOND PORTION OF DESIGN.)

at the left side of the opening to be filled up, and work two overcast stitches into the braid at the top; then leave a space rather more than equal to these two, and again work two, alternating the stitches and the space, until the opposite braid is reached. Then, beginning a little lower on the right hand braid, and without breaking off the thread, work back, leaving a small space, and working two overcasts on the space of last row, one between the two overcasts above, and two beyond them again on the space (keeping these five close together), then a rather longer space than that occupied by the two overcasts of the last row, and go on with the five again and the space to the end. Next, beginning a little below, work back with a space and two overcasts, as in the first row, taking the two overcasts, one on each side of the *centre* stitch of the *five* in the preceding row, and into the space alternately. Then return with the five as before, proceeding in the same manner backwards and forwards, first with two and a space and then

Fig. 4.

with five and a space, until the leaf or flower is filled in.

Fig. 4 is a very effective stitch. Begin from the left, leave a space, and work two overcasts into the braid above, then a short space and two more overcasts, then a long space equal to seven overcasts, and repeat all to the end of the row. Put in the needle a little lower down, and work back seven overcasts into the long space, then a short space and two overcasts into the short space of the last row, again a short space and seven into

the long one above, continuing thus alternately until the row is completed. Now proceed with the two stitches and the short space, and the two stitches and the long space, for the next row, the stitches being taken into the short spaces above. Then the same in returning, but the overcasts must be worked into the long space above instead of into the braid, as at first. This row answers to that first described, and thus the pattern is continued as given above, being worked backwards and forwards, as may be presumed to be the case with all fancy stitches, unless directions be given to break off the thread.

COOKERY.—LXV.

FRENCH SOUPS.

Printanier Allemande (*Spring Vegetables Dressed in the German Manner*).—Take a good handful of parsley, sorrel, lettuce, and chervil, and cut them into very small pieces; put them into a saucepan with about one pint and three-quarters of peas. Pour over them a sufficient quantity of good broth, adding some salt if required, and let them simmer for two hours. Now boil three-quarters of a pound of rice in water, with some salt and butter, and mix it with the other articles into a kind of paste, and serve it on bread.

Potage à la Purée de Navets (*Soup with Turnips*).—Prepare turnips in the manner directed for the *purée de carottes*, except that the *purée de navets* should be of a light colour. In preparing this soup care must be taken that it be not made too thin.

Potage à la Crécy (*Soup named after Crécy*).—Cut up six large carrots, four large turnips, six large onions, three pieces of celery, and four leeks—more if you prefer it. Put into a saucepan some butter, a piece of sugar half the size of an egg, and the vegetables. Place the vessel over the fire, taking great care that its contents do not become brown. Pour some stock over them, and allow them to simmer over the fire for two hours. When done, strain the soup through muslin, taking care that it is not too thick, and pour it over bread steeped in stock.

Potage aux Concombres (*Soup with Cucumbers*).—The cucumbers must be cut into small oval pieces, and then steeped in warm water for ten minutes; then let them cool and drain them. Now place some slices of bacon at the bottom of the saucepan, put on them the cucumbers, and cover them with more slices of bacon. To them add some carrots, onions, coarse pepper, and half the head of a clove, and let them cook for half an hour. A soup like that directed for *potage au pain* is now to be prepared, and the cucumbers placed on it. The rest of the contents of the saucepan are to be passed through a sieve, and, when the fat is removed, poured over the soup. Sometimes, after the cucumbers have been steeped in water, they are put into stock, and simmered for three-quarters of an hour, and then the contents of the saucepan poured over the bread.

Languedocien.—Take the roots directed for the preparation of *julienne*, and cut them up in a similar way. Then pour half a pound of olive oil in a vessel, place the roots in it, and cook them in the oil and strain them. Prepare some soup with about a pint of green peas, mix it with the above, add a sufficient quantity of stock, and simmer the whole for two hours. Sometimes, before sending this dish to table, half a glass of good salad oil is added, and the crust of bread on which it is poured must be cut in thin pieces like the roots.

Croûte au Pot (*Stock Broth with Bread*).—Take some crusts of bread from which all the crumb has been previously removed, cut them up, and place them in a deep dish. Pour stock over them, with some dripping, and fry them over a slow fire until they become brown and crisp. Now take three slices of bread, and [illegible] all the crumb, soak them in some rich stock, and [illegible] them with salt and pepper. These pieces of bread are then to be arranged in order on the fried bread, and all liquid drained from them previously to their being sent to table. The stock must be poured into a proper vessel, and sent to table with this dish, so that the guests may have it poured, during the meal, on the cooked bread on their plates.

Croûte à la Kernel (*Crust of Bread Dressed in the Kernel Method*).—To prepare this dish take thirty carrots, thirty turnips, thirty small onions, and twenty leeks, cut them into pieces of the same thickness, about one inch in length, and also ten heads of celery cut to the same length. In addition six whole lettuces (more or less, according to the size of the soup). Steep the vegetables in water, and cook them in stock.

Croûte à la Purée de Lentilles (*Broth of Lentils with Bread*).—A pint and three-quarters of lentils is sufficient for a tureen of soup, unless a very large one is required. They are to be simmered in stock with two carrots, two onions, and two cloves, and when sufficiently cooked are to be strained. The clear purée is then to be made hot, and all the fat floating on the surface of the liquid having been removed, it is to be poured on the crusts of bread a short time before sending to table, in order that the bread may have time to swell.

Croûte à la Purée de Pois Nouveaux (*Broth of Young Peas with Bread*).—Take about four pints of large peas, and put them in cold water with four ounces of butter, and well mix up by the hands. They are then to be placed on a strainer till all the water has drained away, and then put in a saucepan, with a small handful of parsley and some pinches of chives. Now place the saucepan on a slow fire, and stir frequently. After they have remained on the fire for an hour and a half, empty them into a marble or stone mortar, and let them be well pounded. They are then to be passed through a sieve, and occasionally moistened with stock, to enable the soup to pass through more easily. After it has passed through quite clear, it is to be made hot for use. If it should happen that the peas when dressed do not look sufficiently green, add a little green colouring (the composition of which will be explained in a future article). Pour the soup over the bread-crusts ten minutes previously to serving them at table, so that they become well soaked with it.

Croûte à la Purée de Haricots Blancs (*Haricot Broth with Bread*).—Haricot soup is prepared in the same manner as that of lentils. You must make this soup clear, and not allow it to boil. At the time of pouring the soup over the crusts a piece of good butter is to be put into it, and stirred up so as to mix it thoroughly. Be very careful, before serving up this soup, that it is sufficiently seasoned.

Purée de Pois Secs (*Soup of Dry Peas*).—After [illegible] washed the peas several times put them in a [illegible] and pour some thin stock over them. If no [illegible] be ready, water may be used for this purpose; [illegible] case put with the peas three carrots, three [illegible] two cloves, three pieces of celery, four ounces of [illegible] sufficient quantity of salt, and simmer them all [illegible] When the peas are sufficiently cooked—the [illegible] tables being removed—they are to be passed [illegible] sieve. It is necessary to be careful that when [illegible] shall be so thick that you may be able [illegible] at your discretion. When the peas are young [illegible] be put into a saucepan with a handful [illegible] some chives, and a little salt (the quantity depending on the nature of the peas), and the pan be placed over a gentle fire. When the peas, parsley, and chives are slightly changed in colour, cover the saucepan, and let it remain at a moderate heat for half an hour, frequently stirring the

[illegible]. When the peas feel sufficiently soft under the finger, bruise them in a mortar and pass them through a sieve. When the peas do not look sufficiently green, before putting them into the soup add a spoonful of green colouring.

Potage au Pain et à la Purée Maigre (*Vegetable Soup with Bread*).—Put the *purée* into some thin stock and boil them together, but not for long, lest the flavour should be injured; then scum off any fat that may float on its surface, and pour it over the bread about eight minutes before sending to the table.

Purée de Lentilles au Maigre (*Thin Soup of Lentils*).—*Purée* of lentils is prepared in the same manner as that of dry peas, and is to be put into soup when the rice or vermicelli is cooked.

A la Viennet (*Bread fried for Soup*).—Cut some slices of bread about half an inch thick, and, the crust being removed, shape the bread into squares, ovals, or round pieces. These pieces of bread are to be about the size of a two-shilling piece, care being taken that they are all cut of the same thickness and diameter. Now prepare twenty or thirty of such pieces, and when they are ready put them into a pan with sufficient butter, and place them over a quick fire, taking care to turn them continually until they are browned. Remove the fried pieces of bread from the pan, let them drain on a piece of white calico, and then place them in a tureen. About ten minutes before sending them to table pour over them some thin boiling *purée*. Any kind may be used for this purpose, either that of carrots, turnips, lentils, or peas. A small piece of sugar should be added to the *purée* before using it.

Croûte à l'Artois (*Bread Cooked in the Artois Manner*).—Fry in butter some pieces of bread until they become brown: they may be cut into any shape, either round, oval, or square, that may be preferred, but it is necessary that they should be cut out of bread from which the crust has been removed. Now prepare a green soup (see *purée of young peas*), and thin it with a sufficient quantity of stock. When ready, put in a piece of butter, and a little salt to season it, and pour it over the pieces of bread.

Croûte à la Chantilly (*Bread Dressed in the Chantilly Method*).—Take some slices of the inside of a loaf, and cut them into squares of the size directed in a previous article. Also prepare a *purée* of lentils, and add a piece of butter the size of an egg. Warm the soup without placing it on the fire, and put in sufficient salt to season it. This soup should not be poured over the bread until ready to be sent to table.

Croûte à la Purée de Marrons (*Bread with Chestnut Soup*).—Cook some large chestnuts in fat, and season them well. When ready, preserve twenty-four of them whole, and pound the remainder. Then soak in some stock a piece of the soft crumb of bread, of about four ounces weight, which should be pounded with the chestnuts. When the whole is well broken up, you pour over [illegible] some hot stock, and pass it through a sieve. Now place the *purée* in a saucepan on the fire, taking care that it is sufficiently thin, otherwise the soup will be [illegible]. Before sending it to table, pour it over pieces of bread fried in butter, and neatly arranged in a tureen, the twenty-four whole chestnuts being also added. In [illegible] this dish, either stock made from meat, or stock [illegible] from vegetables alone, may be used. In either [illegible] care must be taken that sufficient salt be added [illegible] to season it.

Potage au Riz (*Soup with Rice*).—Take about eight ounces of rice, clean it well, and wash it three or four times in lukewarm water, and afterwards in cold. Now swell the rice in good stock, and simmer it for two hours over a slow fire, taking great care that the stock does not become too salt, owing to evaporation.

ODDS AND ENDS.

A French Preparation for Removing Grease or Oil Stains.—Take some dry white soap, scraped into a fine powder, and mix it up in a mortar with a sufficient quantity of alcohol, until dissolved. Then add the yolk of an egg, and mix them together. When sufficiently mixed, put in a small quantity of spirits of turpentine, and make the whole up into the consistence of thick paste by the addition of a sufficient quantity of fuller's earth. When required for use, this preparation is to be rubbed over the grease or oil stains, which should be previously moistened with warm water. When the spots are got rid of, remove the composition with a sponge, or soft brush. This composition may be used for every kind of stain, except those caused by ink or rust.

A Liquid Preparation for the same Purpose.—To prepare this cleaning liquid, mix together in a phial, furnished with a stopper, equal quantities of alcohol and rectified sulphuric ether, with eight times the quantity of rectified oil of turpentine. A little essential oil of lemon may also be added, to remove the smell of the turpentine. That kind of alcohol and sulphuric ether which is prepared from methylated spirit, which is very cheap, will answer as well as that made from pure spirit, which is much dearer. It is necessary that the stopper of the bottle should fit as accurately as possible, owing to the volatile nature of the liquids employed. When it is wished to remove an oil or grease spot, the liquid should be applied to the spot, and rubbed over it with a piece of soft sponge. When we wish to get rid of an old stain, it is advisable to warm it previously to applying the liquid.

A Cheap Ink for Marking Linen by means of Stamp or Stencil Plate.—Take two parts of sulphate of manganese, and mix it intimately with four parts of white sugar, reduced to fine powder, and one part of lampblack. When the powders are well mixed, they are to be made into a paste, of a semi-liquid consistence, with two parts of water. When required for use, the paste is spread thinly over a piece of cloth or thick flannel, and the wood or metal stamp, with which we intend to mark the linen is brought down upon it, so as to receive a thin coating of ink, and then stamped on the fabric. When a stencil plate is used instead of a stamp, it is laid on the surface of the linen, and the ink passed over the plate by means of a stiff brush. After the ink is applied to the linen, it must be allowed to remain until dry, and then the marked portion is to be moistened with a weak solution of caustic potash, by which the soluble sulphate of manganese is decomposed in the pores of the fabric into the insoluble black oxide of manganese. When the linen is afterwards washed, the ink marks will be found to have assumed a deep black colour. This ink has the great advantage of not staining the hands like ordinary marking ink prepared with nitrate of silver; neither does it become decomposed by contact with wood or metal.

How to Prepare Tracing-paper.—Tracing-paper of the best quality may be easily made by painting over fine tissue paper with equal parts of oil of turpentine and mastic varnish. To make it, the tissue paper should be spread out perfectly flat on a level surface, and the liquid applied carefully over its surface with a soft brush. While doing this, care should be taken that every part of the paper shall be completely covered, and that no more varnish is applied to one part of the paper than another. When the tissue paper has been completely covered over with the fluid, it is to be taken up, and hung to dry, from a string stretched across the room. During the drying, the atmosphere of the apartment should be kept as warm in temperature as possible, and free from dust. If it is wished to paint in water-colours on the transparent paper, it may be rendered capable of receiving them, by brushing it over with a solution of purified ox-gall.

HOUSEHOLD AMUSEMENTS.—XXX.

ARCHERY.

THIS graceful and elegant art, which, when no longer used for warlike purposes, became a fashionable and a royal game, deserves more attention by private families than seems at present to be bestowed upon it. It would be quite as easy to set up a target on a lawn as to cover it with croquet bridges; and an archery meeting on however small a scale, with or without its pretty green tunic and hat and feathers, has an unspeakable charm.

The associations dependent on the art, whether they be warlike or connected with archery in general, render it exceedingly attractive; and a few words explanatory of the reasons which render the game so interesting, may not be intrusive previous to the necessary instructions for using the bow and arrow artistically, but may rather serve to lead those who are not familiar with the history of archery, to feel an inclination to become acquainted with such an agreeable recreation for the sunshiny, joyous hours of spring and summer.

The first mention of the bow and arrow is found in the Book of Genesis, where it is written that Ishmael, the son of Abraham, "dwelt in the wilderness and became an archer." A "bow-shot," too, is mentioned as a measure of distance.

In the Greek mythology we find Apollo armed with a bow and arrow (Homer, "Iliad," i. 45), and Hercules, also, as described in the "Odyssey" (xi. 606), from whence we may conclude the use of these weapons to be of very high antiquity among the Greeks. Archers, in the later times of Greece, formed a part of the light-armed troops; and it is recorded by Procopius as a great improvement, when the Roman auxiliaries were instructed to draw the right hand to the ear; though the practice itself is of much greater antiquity, as shown in the representations of the sea-fights, on the walls of Medinet-Habou, at Thebes, in Egypt.

In the sculptured slates found at Koorsabad and Nineveh (Botta and Layard) representations of archers frequently occur, and the bow seems to have been a weapon in the Assyrian and also in the Persian armies.

Of the time when shooting with the long-bow first began among the English, at which exercise they became so expert, there are no certain accounts. That used by the Normans at the battle of Hastings was the arbalist, or cross-bow, and William the Conqueror had a considerable number of bowmen in his army; but no mention of such troops is made on the side of Harold. The arrow used in the cross-bow was termed in French *quadrel*, and in English a *bolt*. It was not shot by a string, but sent through a groove by means of a trigger. In the Armoury department of the Tower of London some interesting specimens of these bows may be seen.

SCOTTISH ARCHER OF THE ROYAL GUARD.

We find in the reign of Henry II. the cross-bow still in use, and in the reign of Henry III. cross-bowmen formed the vanguard of the army; but it was, in all probability, used last at the battle of Bosworth, in 1485. Queen Elizabeth, however, in 1572, engaged by treaty to supply the King of France with 6,000 men, armed partly with long-bows and partly with cross-bows; and the latter were used on the Continent in the wars of the sixteenth century.

The long-bow (Fig. 1), now used at archery-meetings, is very frequently mentioned in English history from the time of Edward II. In several battles gained over the French, and at Cressy, Poictiers, and Agincourt, the victory is ascribed to the English bowmen; and it is particularly noticed that at Cressy the rain, which had slackened the strings of the French cross-bows, had not weakened the effect of the long-bows used by the English, because the long-bow, when unstrung, may be easily protected from the weather, whereas the form of the arbalist, or cross-bow, prevents its being so conveniently kept dry; and to this circumstance the English archers chiefly ascribed their victories.

Many battles were fought and gained by the archers only; and the French historian, Philip de Comines, agrees with our own writers in asserting that the English archers excelled those of every other nation. The French depended chiefly on their men-at-arms, and the Scots on their pikemen; but the ranks of both were often thinned and thrown into disorder by flights of arrows before they could reach their enemies.

Before the introduction of fire-arms, the enemy could

only be struck at a distance either by slings, or the bow used by the ancients, or the cross-bow, to all of which the English long-bow was infinitely superior. After a shot from a cross-bow it took some time to re-charge it, and the bolts were heavy and cumbersome for carriage; but the English long-bow, together with the quiver, was easily borne by the archer, as easily secured from rain, and instantaneously re-charged. It is not therefore surprising that troops using this weapon should be victorious, even when opposed to much more numerous armies; and it appears that the long-bow continued in use for more than two centuries after gunpowder had been introduced, muskets being no doubt found very cumbersome to soldiers accustomed to the bow.

The Artillery Company of London are the remains of the ancient fraternity of archers; artillery (*artillerie*) being a French term, signifying *archery*. An archer's division formed a branch of the company till within the present century, and over the entrances to the grounds of the Artillery Company may still be seen a hand hurling a dart.

"The Royal Company of Archers, the King's Body-guard of Scotland," is the most important society of archers now existing. The ancient records of the company were destroyed by fire in the sixteenth century, and no authentic traces of its institution now remain; but from entries found in old national records, this company is considered to be very ancient, and to have owed its origin to the commissioners appointed in the reign of James I. of Scotland, for enforcing and overseeing the exercise of archery in different counties. These commissioners, who were men of rank and power, picked out from among the better classes under their cognisance the most expert bowmen, and formed them into a company, and, upon perilous occasions, they attended the king as his chief body-guard, and in this position always distinguished themselves for their loyalty, courage, and skill in archery. The illustration on the previous page represents a portrait of a person in the uniform of the Royal Archer Guard of Scotland, said to be a Lord Elcho (about A.D. 1713). The original is in the possession of W. Gordon Watson, Esq., Edinburgh.

When King George IV. paid his visit to Scotland in 1822, as the rank of the king's body-guard was understood from tradition to be vested in the Royal Company, they claimed the honour of acting in that capacity to his Majesty; attended him at Court on all state occasions and accompanied him on his embarkation for London; and the Royal Company of Archers now forms part of the Royal Household in Scotland, having a captain-general, who holds the office of Gold Stick for Scotland, four lieutenants-general, four majors-general, four ensigns-general, and fifteen brigadiers-general—all persons of distinction.

The title of "His Majesty's Company of Archers" was conferred in 1677, and in 1788 King George III. of England granted a sum of money for a piece of plate, to be shot for annually as a prize.

The company consists of five hundred members, and the field uniform is of dark green cloth, faced with black braid and a narrow stripe of crimson velvet. The hat is of the same colour, with a handsome medallion in front, and a plume of black feathers. It has two standards: King William IV. presented new colours as well as a confirmation of the Royal Company being the king's body-guard for Scotland.

King George IV., when Prince of Wales, patronised the practice of archery, and numerous societies of archers were formed, many of which still hold their meetings in various parts of the country, ladies taking an active share in the competition for prizes.

Descriptions and Directions.—The implements used in archery, as a pastime of the present day, are: a bow, arrows, a quiver, a pouch, a belt, a tassel, and greasepot, an arm-guard, or brace, a shooting-glove, a target, and a scoring-card.

Fig. 7.

Fig. 5.

Fig. 4.

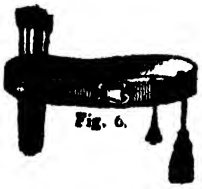


Fig. 6.

Fig. 2.

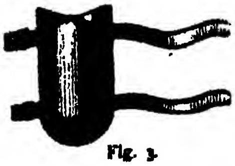


Fig. 3.

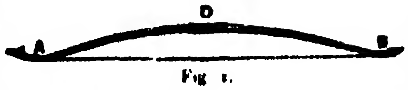


Fig. 1.

The Bow.—The bow (Fig. 1) is usually from five to six feet in length, the strength being reckoned by pounds, varying from twenty-five to eighty. Those used by gentlemen being, in strength, from fifty to eighty pounds, those for ladies from twenty-five to forty; the former are made of a single piece of yew, the latter of lancewood or hickory, glued back to back. In forming the bow the wood is gradually tapered, and at each end is a tip of horn, the one at the upper end, A, being longer than the lower end, B; and one side of the bow is flat, called the "back;" the other rounded, and called the "belly." Near the centre, at D, where the bow is held, it is bound with velvet, which part is called the "handle;" and in each tip of horn is a notch for the string to rest in, called the "nock."

The String.—The string of the bow is manufactured of hemp or flax; the hemp strings wear the longest though they stretch more at first, but being more elastic bear a harder pull. When it is necessary to fix a fresh string to the bow, care must be taken not to break the composition; the tie should be cut, the eye worked at one end, held, the other part allowed to hang down, and the eye passed over the upper end of the bow. If for a lady, it may be held from two to two inches and a half below the nock; if for a gentleman, half an inch lower, varying it according to the length and strength of the bow. The hand is then passed along the side of the bow and string to the bottom nock, round which the string is turned, and fixed by the noose. When strung, a lady's bow will have the string about five or five inches and a half from the belly of the bow, and a gentleman's about half an inch more. The part of the string opposite the handle, D, is bound round with waxed silk, in order to prevent its being frayed by the arrow, which is sent from that point. As soon as a string becomes too soft and the fibres too straight, it must be rubbed with bees'-wax, and a few turns given to it, to shorten it and twist its strands a little tighter; but a spare string should always be provided.

The Arrows.—Arrows are variously formed: some being of uniform thickness throughout; others thicker in the centre, or larger at the point than at the feather end; the last shape being considered the best form for shooting. Arrows are made of white deal, having at one end points of iron or brass firmly fixed, and usually a piece of heavy wood spliced on to the deal between it and the point, by which their flight is improved. At the other end a piece of horn is inserted, in which is a notch for the string; and they are armed with three feathers, one of which is of a different colour to the others, and is

intended to mark the proper position of the arrow when placed on the string; this one always pointing from the bow. These feathers give a rotary motion to the arrow, causing its flight to be straight, and are generally from the wing of the turkey or goose. The length and weight of the arrow varies, the weight being marked on it in plain figures; and it is usual to mark them just above the feathers, to distinguish them when shooting at the target.

The Quiver.—This is merely a tin case painted green (Fig. 5), in which to keep the arrows when not in use.

The Pouch and Belt (Fig. 6) are worn round the waist; and the former contains those arrows which are actually being shot. A pot to hold grease for touching the glove and string (Fig. 4), and a tassel to wipe the arrows, are hung to the belt. The grease is composed of deer or beef suet and bees'-wax melted together. Ladies wear a cord and tassel, instead of the leather belt, and a pouch of a different shape to that used by gentlemen.

The arm is protected from the blow of the string by the brace (Fig. 3), which is a broad guard of strong leather, buckled on by two straps. A shooting-glove (Fig. 2), made of thin tubes of leather, is attached to the wrist by three flat pieces, ending in a circular strap, buckled round it: this is necessary to protect the fingers from injury.

The Target (Fig. 7).—This is a circular mat of straw covered with canvas, painted in a series of circles of various colours. It is usually from three feet six inches to four feet in diameter. The centre is about six or eight inches in diameter, gilt, and called "the gold;" the next is called "the red;" after which comes "the inner white;" then "the black;" and, finally, "the outer white." The target is mounted upon a triangular stand, at from fifty to one hundred yards' distance, sixty being the usual shooting distance.

A scoring-card is provided, with columns for each colour, which are marked with a pin. The usual score for a gold is nine; the red, seven; inner white, six; black, three; and outer white, one.

HOUSEHOLD CHEMISTRY.—XIII.

COAL AND COKE.

WHEN good coal is burnt in a grate of proper construction, it gives out a large amount of heat during its combustion; under favourable circumstances the temperature thus produced being above 2000° centigrade. Good coal as it burns gives out a large quantity of inflammable gas, which readily burning keeps up the heat and produces that pleasant blaze so characteristic of a coal fire. For this reason it is advisable not to stir the fire too often, since it tends not only to waste the fuel, but also, by cooling the fire, to diminish the amount of gas given off.

All coal contains a certain amount of water, although the coal may appear to be perfectly dry. In some cases it contains as much as twenty parts of water in each hundred parts of coals. For this reason, in estimating the value of different kinds of coal for heating purposes, the amount of water they may contain should be carefully ascertained, as it is a great loss to the consumer to pay the price of coal for the water it may contain. The amount of water present in a sample of coal may be easily learnt by weighing out a small quantity—say a hundred grains—and placing it over the mantelshelf for a few days, during which time it parts with its moisture. If the coal is again weighed, the loss of weight will show the quantity of water it originally contained. For this reason it is advisable always to purchase coal in hot dry weather.

The presence of water in coal tends very materially to impair its combustion, owing to the large amount of heat required by water before it can assume the state of vapour.

After coal is burnt it leaves behind it some ash. The quantity and kind of ash thus left deserves the attentive consideration of every person who burns coal, since he has to pay for these incombustible matters the price of coal.

The principal inorganic matters found in coal, and which are left behind as ashes, are iron, alumina, silica, and lime. When coal containing a large quantity of iron is burnt, the ashes left have often a red colour; this is due to the iron being converted into a red sesquioxide (rust of iron) by the absorption of oxygen during combustion of the coal. The use of such coal will be found to very quickly destroy the bars and iron-work of the grate in which it is burnt. This is owing to the ashes of coal that contain much iron being more fusible than ordinary ashes in which it is absent, and by this means preventing a free current of air through the grate. Coal of this kind, also, from the same cause, gives more trouble in cleaning out the grate, owing to the greater difficulty of removing the ashes.

The earthy substance called shale, which is so often found in inferior coal, consists of silicic acid in combination with alumina. Coal always contains sulphur, usually in the form of iron pyrites (sulphuret of iron), and it is to the presence of this substance that the bisulphide of carbon, and sulphuretted hydrogen gas found in badly prepared coal gas is to be attributed. Sometimes large quantities of this iron pyrites are found in coal, and the spontaneous combustion to which such coal is liable is due to the readiness with which the pyrites absorbs oxygen, producing the sulphate of iron. Coal of this description often falls in pieces from the same cause. When coal which contains much iron is exposed to the atmosphere and damp, spots often form on its surface owing to the production of the sulphate of iron.

The chemical composition of coal is carbon, hydrogen, oxygen, nitrogen, and sulphur, in addition to the other substances left behind in the ash. It is due to the presence of the nitrogen that ammonia is produced when coals are exposed to heat out of contact of the atmosphere, while wood, which contains the same elements, with the exception of the sulphur and nitrogen, yields acetic acid under the same circumstances. The amount of nitrogen present in coal is from one to ten per cent.

One great advantage possessed by good coal is that from its small bulk it lies together more compactly in the grate than either wood or peat; and owing to this cause a regular current of air passes more easily through the burning mass, and thus assists in keeping up the combustion. Coal fires also require less attention than those of wood to keep them burning. The degree of heat produced by the combustion of coal is 300° centigrade higher than that given out by wood under the same circumstances.

When coal is exposed to heat in a closed vessel, out of contact of the air, it leaves behind it a solid substance called coke, while water, ammonia, tar, and coal gas are also produced by the action of the heat out of the constituents of the coal. This is especially the case with the class of coal known as "bituminous," from its burning with a smoky flame. Coke prepared in this way contains much of the sulphur originally present in the coal. The presence of sulphur in coke is indicated by a peculiar appearance on its surface.

Good coke is a more or less porous substance, with a silky or metallic lustre, and iron grey appearance. It does not blacken what it touches in the manner of ordinary coal. The appearance of coke, however, varies slightly, according to the kind of coal from which it was produced, the kind prepared from bituminous coal having a greater lustre, and presenting the appearance of having been partially melted. If the coke is prepared from coal which contains much sulphuret of iron, it is found to exert a very prejudicial action on the iron bars and sides of the grate. If, however, the sulphur was contained in the coal, in union with lime, then it does not have such an injurious effect upon iron.

... the coal, when it contains much of the sulphuret of iron, is liable to ignite spontaneously when exposed to the air if stored in large quantities. Coke is most useful when we require a powerful heat in small space, and where much flame is not desired. Before it can burn with advantage, it requires a powerful draught, and that the coke should be at the temperature of a bright red heat. Burnt under these conditions, it is superior to charcoal, which does not yield so high a degree of heat. A coke fire forms a more compact mass of burning material than one composed of charcoal, and therefore becomes of a higher temperature.

If we analyse the composition of a number of samples of coke, and take the average, we shall find that coke consists of eighty-five to ninety-two per cent. of carbon, five to ten per cent. of moisture, and five to ten per cent. of ash. Sometimes coke contains a larger proportion of moisture, some specimens yielding as much as twenty per cent. The quantity of ash varies greatly in different samples, some kinds yielding as much as thirty parts in the hundred, in others scarcely more than four per cent. When the amount equals twelve per cent., that coke is to be considered of inferior quality.

THE HOUSEHOLD MECHANIC.—XLIV.

OVENS (*continued from p. 277*).

We cannot give any precise time for the heating of the oven. It has been stated by some that two hours or somewhat less is about the time for bringing the oven to a sufficient heat, dependent on the construction of the oven and the quantity of wood, coal, or other fuel employed to heat it. With regard, however, to the great majority of ovens, it is found that an hour, and sometimes even half an hour, has proved sufficient. Notwithstanding that an oven remains very hot after a batch of bread is withdrawn, it is incapable of baking a second batch; and in consequence requires to be heated afresh with a farther portion of fuel, so as to bring it to the proper temperature. The quantity of fuel, however, which is required to heat the oven a second time is considerably less than was used on the first occasion; the time, too, of heating being likewise proportionally less. For a third, and any number of succeeding batches, the time of heating, as well as the quantity of fuel, continues to diminish, until all the parts of the oven, and everything around and connected with it, have reached a uniform degree of temperature. When this is the case, only a third part the quantity of fuel required in the first instance will be necessary to bring the oven to the proper heat. Experiments have been made to determine the precise degree of temperature most proper for the baking of bread, which has been stated to be 270° Fahrenheit, or 58° above the temperature of boiling water. The ovens commonly used in Germany are too deep from the front to the farther end, to admit the clearing out of the embers and proper arrangement of the bread; for these purposes, therefore, it is a common practice to send into the oven a girl, who, as may readily be supposed, performs her task as quickly as possible. This fact affords a striking example of the excessive degree of heat the human body is able to endure, and likewise of one of the properties of air. The feet of the girls who are thus sent into the oven are bound up in flannel, which shields them from the heat retained by the flooring; and air does not part with its heat so readily as solid bodies. The best and most proper method of cleansing an oven before setting in the bread, after sweeping it out with a brush or broom (the embers having been first scraped out), is to wipe it over with a damped cloth or canvas, commonly termed a "swab."

The next matter of importance is to be able to ascertain whether the oven be heated to the right degree of temperature. This experienced bakers form an opinion of from the appearance of the brickwork of the arched roof; as when the temperature is sufficiently great, the black and soot, which settled upon the brickwork from the fuel when first lighted, disappear, being burnt off by the heat of the oven. In the former article we mentioned the old plan of the white stone placed in the oven for this purpose, and also the method of testing by means of rubbing a stick along the heated floor, the stick taking fire by reason of contact with the heated tiles, and leaving a black mark, which will speedily disappear, being burnt off by the heat of the tiles, if the temperature of the oven be sufficiently high for bread-baking. The heat of the oven is sometimes tested by introducing a piece of green vegetable, which, if scorched, shows that the oven is too hot; but the best method is to sprinkle a handful of flour on the floor of the oven. To insure, however, a true test by this means, the following particulars regarding the different effects which will be produced on new and old flour must be carefully borne in mind:—Old flour will burn with a heat which will hardly blacken new flour. The most desirable flour to employ for this purpose is the newest. If the flour is *very* new, the heat of the floor of the oven will only turn it a deep brown; if not quite so new, it will turn it black, but not set it on fire. Should the flour (being new) either take fire or turn quickly black, it may be known that the temperature is too high for bread-baking, and the introduction of the batch must be delayed until the temperature of the oven has fallen to the right degree. The next step in the process of baking is to set in the bread, which is commenced by placing on the peel a few of the loaves which had been left to rise. The peel, it is to be remembered, must be dusted over with a little flour, to prevent the loaves sticking to it.

During the time that the bread is left to stand in the raised temperature it becomes considerably swollen or enlarged in size, which is termed "rising." For the purpose of setting in the bread, the floor of the oven should be illumined, either by a jet of gas situated on a jointed arm at the mouth of the oven, or by a lamp, in order that the baker may be able properly to arrange the loaves. When the whole batch has been introduced into the oven the door is closely shut, and frequently sealed by means of stopping up the cracks with cement or plaster. After the batch has been inspected—in about twenty minutes or half an hour's time (dependent on the oven) from the time when the batch was finished setting in—and the loaves from the back (the hottest part of the oven) changed places with those at the front, the door is again closely secured as before, till the bread may be considered to be baked. The time that a batch is in baking varies according to the construction of the oven and its exact temperature at the time of setting in. It also varies in proportion to the size of the loaves, but the general average time is from an hour and a half to two hours and a half. The heat by which the contents of the oven are baked is of two kinds—that acquired from the floor of the oven, which is imparted by contact; and that shed over the loaves, which is heat radiated by the elliptical arch of the oven. The upper or top crust of the loaf is always darker and more burnt than the crust of the bottom or under part. This is attributable to the fact that the heat radiated by the brickwork of the arch of the oven is greater than that conveyed by contact with the flooring or tiles. The heat possessed by the arch of the oven is produced by the hot air and flames of the furnace, especially noticeable with reference to ovens heated by a separate furnace. The quality of bread depends to a considerable degree on the shape of the loaf, the same dough baked in different forms varying very greatly.

The ordinary household loaf is formed of two cakes of dough placed upon each other and pressed together by

[illegible] which gives the peculiar indent always [illegible] of the loaf. When set in, the loaves [illegible] nearly globular in form; but being placed in contact [illegible] during their swelling they press against each other and become connected, which produces the flattened [illegible] of the common loaf. Cottage and fancy bread is placed at some distance apart. It is believed [illegible] to enable the loaves to be fairly separated, [illegible] cause for its use in the making of household [illegible] is considered to possess a greater quantity [illegible] substance than other bread. There are two stan- [illegible] reasons for the packing of bread so closely in the [illegible] one, that the oven may bake as much as possible [illegible] time, in order [illegible] trouble and expense in heating; the other, that by this method less moisture may dry up from the bread, and consequently less loss in weight. For this reason it was formerly the custom with bakers not to weigh cottage loaves upon selling them. The

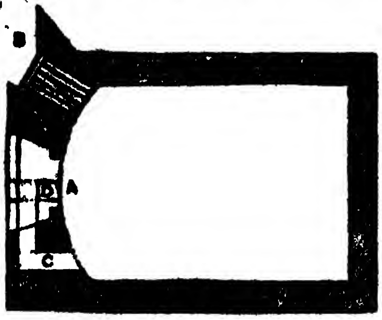


Fig. 1.

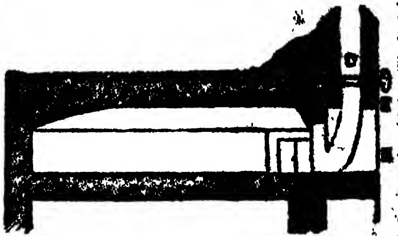


Fig. 2.

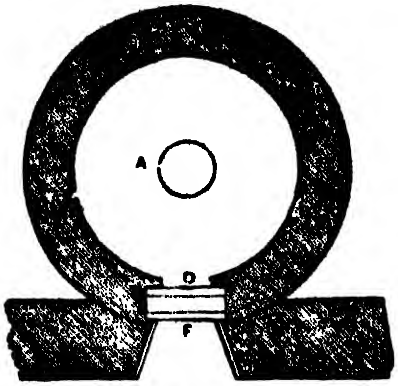


Fig. 3.

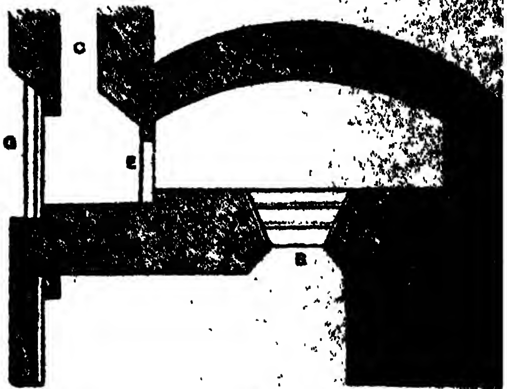


Fig. 4.

imperfect baking so often found with bakers' bread, doubtless arises from the statute fixing the weight of the loaf. The cheaper bread is, as a rule, the most slackly baked; the full-priced bakers being less frequently called upon by their customers to weigh up their bread. The extent of the loss of weight in baking varies to some extent in accordance with the quality of the flour and the proportion of other ingredients mixed with it. The loss of weight in baking is, on an average, one-eighth part of the whole. Considerable loss, too, takes place during the cooling of the bread after it is taken from the oven, and for this reason the parish bakers who supply the workhouses are known whenever possible to deliver the bread in a smoking state. For the sake of economy in fuel, and the greater regularity and perfection of baking, ovens continuous in their heat have been introduced, and the advantages possessed by these large constructions over the small bakers' ovens, have become fully recognised and acknowledged.

Another construction of baker's oven, to be heated with coal, is represented by Figs. 3 and 4. Fig. 1 is a ground plan of the body of the oven—A represents the door. (There is sometimes an inner as well as an outer door, for the purpose of retaining the heated air more closely.) B is the furnace, from which the smoke and flame circulate round the oven, and having done so, pass off by the flue, marked C on the diagram; [illegible] marked E on Fig. 2, for the [illegible] when the oven is heated. [illegible] situated above the door, and [illegible] C. This flue is for the purpose [illegible] and heated air which remain in the [illegible] is taken out. A damper is fitted to [illegible] pose of shutting it off when not in use. A [illegible] for heating water for mixing the dough is frequently [illegible] over the furnace. The same particulars given under the last description of oven will answer sufficiently for this one.

Figs. 3 and 4 represent the plan and the section of another construction of oven to be heated by coal. In this oven a peculiar principle is adopted with regard to the fire. The fire-grate represents a [illegible] fire-basket, fitting into a hole of suitable size made in the floor in the centre of the oven, [illegible] in Fig. 3, and B in Fig. 4. The fire is supplied with air from beneath the floor of the oven, and so soon as the oven is hot the fire-basket is removed, and the hole in which it rested is stopped and secured by a closely-fitting iron lid or cover, which is now fitted upon it. For a small oven this method of heating is very suitable, as the cleansing of the oven is very easy; but the point in which this system is apt to fail is that the oven is often insufficiently heated, but by providing that the fire-basket be amply large, and that the coals be *swift* burners, this objection is obviated. The precaution of having double doors, for the purpose of retaining the heat in the oven, should not be disregarded in this, nor yet in any oven of small size. C, Fig. 4, represents the flue which rises over the mouth of the oven, and is constructed in the same manner as described for the last given kind of oven. A short flue for the escape of steam (fitted with a damper) is also supplied to this oven. D, Fig. 3, and E, Fig. 4, represent the inner door of the oven, while F, Fig. 3, and G, Fig. 4, represent the outer door. A damper is fitted to the smoke-flue to prevent the [illegible] of the heat, and for this purpose it is always closed as soon as the oven is heated and the fire-basket removed.

Biscuit Oven.—The term "biscuit oven" does not pertain exclusively to this oven, which is capable of baking bread to equal perfection as it bakes biscuits. The

[illegible] and apparently very useful [illegible] addition to the other [illegible] and advance the art of [illegible] Carlisle some years since. We [illegible] the "tubular oven," by reason of [illegible] length forming it. It is needless [illegible] of the mode of heating, as it re- [illegible] all other ovens, with the exception that [illegible] is heated with greater ease. The tube is formed of very thick earthen pottery, which quickly possesses itself of the heat contained by the heated air passed through it from the furnace. Its great excellence consists in the manner in which the articles are baked, and that no care is required to attend to the baking. The biscuits or other articles to be baked are slowly

TORTOISESHELL, WHITE, AND STRIPED CATS.

[illegible] through the whole length of the tube, at such a pace only as will admit of the baking being effected during one passage through the tube. For larger goods the length of time in the oven may be increased by causing the chains to traverse the reverse way. The biscuits or other articles may either be placed on trays and set on travelling chains, or the trays may be made into a long web or chain.

A great advantage in economy is derivable from the use of this oven, as, being self-acting, it requires no attention. A pyrometer or a thermometer should be attached to the exterior of the tube, so that the heat of the oven may be known without any trouble, and regulated accordingly.

THE DOMESTIC CAT.—I.

VARIETIES AND DISEASES.

[illegible], although looked down upon as very inferior to a [illegible] horse, or many other household animals of use to man, may still be allowed to hold a place of some slight importance in domestic matters, especially in that of economy; since most assuredly the cat protects provisions of all kinds from the ravages of rats [illegible] presence in the kitchen and warehouse [illegible] more serviceable than all the rat [illegible] have ever been yet made for catching [illegible] these little depredators. Therefore, [illegible] in any way be made useful to man [illegible] for and treated with every possible [illegible] kindness. But there are really not many [illegible] much attention beyond that shown them [illegible] where the daily saucer of milk and [illegible] dinner serve to relieve the monotony of [illegible] a London cat, by rousing her from [illegible] The cat out of town has a pleasant [illegible] garden affording a delightful place [illegible] sunshine, and many a delicious repast [illegible] and poultry. Moths, too, some cats exceedingly enjoy for supper, as they catch them flying in the dusk of the evening among the shrubs, and the amusement of springing after them over the lawn, and beating them down with the paw is as good fun to puss as a game of croquet to her young mistress.

Cats, unless brought up from petted kittens, are not generally attractive inmates of the house—their nature is peculiar, their affection uncertainly bestowed, even upon those who love them most. One moment their caressing friend is rewarded with a purr and signs of delighted recognition; but when seated on the knee, should a pat be given that is not exactly in accordance with pussy's taste and feelings, the hand, the moment before that was affectionately caressed, is scratched or bitten, and the cat flies off, spitting in a perfect fury. A fickle or ungrateful disposition is neither lovely nor lovable; and as most cats are fickle, ungrateful, and selfish, they are not often favourites.

Whether our domestic cat is a distinct species is not decidedly known. By some naturalists it is considered to have descended from the wild cat, while others as distinctly affirm the contrary. Certainly there is a good deal in the character of our cats to induce the belief that their origin was wild and savage, and as all our domestic

animals were originally wild, why should not the cat have been once wild also, especially as untamed savage cats are still found in many parts of the world, and in former times were hunted in England as the fox is now? In fact, the cat might be called the domestic tiger or leopard, for she looks like a species of those wild beasts degraded by domesticity. However tame a cat may be individually, the race has certainly not lost its original habits; ferocity, cunning, and treachery still characterise the cat, even on the comfortable lap or at the side of its fond mistress.

The domestic cat is of various colours, from white to black, and the tortoiseshell one is reckoned the handsomest, although males of this description are seldom, if ever, to be found. The cat is a cleanly, neat, and very useful creature, but can scarcely ever be cured of thieving propensities. The tongue is uncommonly rough, and the claws, which are sheathed and brought out as the animal pleases, exceedingly sharp. The cat lives ten or twelve years, and brings forth five or six kittens at a litter, which the mother educates and teaches many little tricks: her lessons in mouse-catching are extremely clever and amusing.

At the present time wild cats are scarce in England, less so in Ireland and Scotland; and when met with they manifest great ferocity. They seem also to do as much mischief to the farmers as other wild animals, destroying and devouring poultry and other produce to a great extent. In colour wild cats very much resemble the tiger, and thus, if it is possible to believe the domesticated cat a descendant of the wild cat, it will be extremely easy to imagine the marks the same, but fainter in some instances. It is not unusual to see a light, reddish yellow cat, with very distinct stripes of dark brown covering the body like the wild cat; and, indeed, most cats of any colour are generally striped. Thus far they are similar, and even so to the line of dark spots down the back; but then it is rare to find a cat with a short bushy tail, although not impossible, even to the black tip; but perfectly to resemble the wild cat in colour, our cat must have the feet and the inside of the legs of a yellowish grey.

Some naturalists strongly contend that our domestic English cat has descended from the cat of the Egyptians; and this opinion is strengthened from the fact of Rüppel having, during his travels in Nubia, discovered a cat (*Felis maniculata*) of the size of a middle-sized domestic cat, and one-third smaller than the European wild cat (*Felis catus feris*, Linn.). But Bell, in his "History of Quadrupeds," doubts if the common *wild* cat is the original from which all our domestic cats have sprung, grounding his opinion upon the difference of conformation of the two animals, especially in the length and form of the tail, which in the wild cat is as large towards the extremity as at the base and middle, whilst the tail of the domestic cat tapers towards the end; but this argument does not seem to carry much weight, as there are some cats without tails, and those of our domestic cats differ greatly in appearance. Besides, it must be remembered that no wild cat's tail can be more bushy or larger from one end to the other than the tails of our domestic cats when in a rage. It would almost seem that the tamed nature of the animal had altered, and as it were subdued, its wild character and appearance at the same time. The hair, that is rough and as fierce-looking as the wild creature itself, seems to become sleek and *close* when in a domestic state. No doubt the tail of a wild cat could be compressed to the form of the tail of the domestic cat, and made to look like it, by pressing the hand firmly over it.

Whatever may be the origin of the cats at present living in a domesticated state, the animal bearing the name appears to have been, in former times, held in far greater estimation than in these days, although the value in some cases does not seem to have been as highly marked as in some markets at present.

A kitten was, centuries back in England, legally valued at one penny until nine days old, and twopence until it caught a mouse; and laws were made to punish the stealer of a cat used for protecting the corn against the depredations of rats, which seems to give the idea that cats were not common in England in those times. Cats are still sold regularly at Leadenhall and other markets, chiefly to be kept on board ship, to do battle with the rats.

The domestic cat belongs to the family of the cat kind of animal, *Felidæ* or *Felina*, and the order *Carnivora*, in which the organs of destruction are found to reach the highest development. The animals belonging to the tribe *Felina* comprise cats, lions, tigers, leopards, and lynxes; and the cat, however much it be domesticated, we invariably find using its claws and teeth for securing and killing its food, and that the teeth and claws of the cat serve precisely the same purpose as those of the lion or tiger.

Among animals noted for their acuteness in the sense of smelling, cats are mentioned by Blumenbach; the sense of hearing is also very marked; sight also; and any one who carefully observes the manners and movements of the domestic cat, need scarcely be reminded of the similarity between them and those of the order generally.

Cats are as numerous in Cairo as dogs, and many of them are homeless; they are, however, regarded with favour by the natives, who assign as their reason that the prophet Mohammed was very fond of cats. This may be regarded as a relic of the veneration in which they were held by the ancient Egyptians, by whom the cat was considered one of the sacred animals, and more highly reverenced than any other.

Of all the varieties of domestic cats the Angora is the handsomest, although the Persian cat resembles it, having the same long silky fur and large full tail. They are both white, or a very light grey colour, and the tail is long, covered with hair five inches in length.

The Chinese cat is large, with a nice glossy coat, and long ears, hanging like those of a terrier.

The Manx cat is very curious and not pretty; its fur is short, limbs long, eyes projecting, and *no tail*, or, at least, a very short one, not above an inch or two long. It is a very disagreeable-looking animal, and seldom seen in England.

The Spanish cat is what we call tortoiseshell, and is of mixed colours—black, white, yellow, and brown. It is of a pretty form, and much admired by some persons, being generally of a quiet and meek disposition. A perfectly tortoiseshell cat is not common; when not of a good colour, and distinct in shade, they are not at all pretty.

Besides these cats we have the well-known tabby, which is pretty when of perfect colour, but ugly when partly brown; and the blue or the black cat is handsome, and also the black and white. The perfectly white cat, with blue eyes, resembles the Angora and Persian, but the hair is shorter on the body and tail. It occasionally grows to a very large size, and is a nice quiet creature.

Diseases of Cats.—Cats are as liable to disease as other animals, and means should be used to relieve their ailments, although to give physic to cat would seem to be attended with difficulty and danger; but a little brimstone stirred into the milk is a very good remedy for most of our cats' disorders, and is seldom refused by them.

Some cats have in the summer a disorder that causes the hair to fall off in patches; it appears to cause great irritation, as the animal scratches the eruption until it bleeds. A very beautiful white cat has been known to suffer from this disorder for several successive summers. It commenced by a small round patch on the forehead, and when first observed was thought to have been caused by a trap, or wound of some sort. The eruption at last spread entirely over the body, even to the feet, and the pretty white cat became so miserable an object that it was feared she must be destroyed. Brimstone in milk three times a day was administered without any beneficial

results, and Condy's disinfecting fluid was recommended, which effected a cure.

A shilling bottle of Condy's red disinfecting fluid should be purchased, and a teaspoonful to a pint of water put into a bottle. Give the cat a teaspoonful of the diluted fluid in a saucer of milk two or three times a day. The medicine has no taste or smell, and will be found beneficial in most diseases to which cats are subject.

If castor oil is necessary, the animal should be bound round in a large cloth to prevent it scratching, and the person who ventures to administer the medicine must be furnished with a stout pair of gloves. Homœopathic medicine is very good for cats, and dogs also; they will readily take the pilules either dissolved or crushed: some little dogs greatly enjoy them.

HOW TO MAKE VALENTINES.

THE fashion of sending valentines is still so prevalent that a few directions how to make them may not be unwelcome, for the result which entails the outlay of shillings or sovereigns can be achieved for a few pence if the manufacture takes place at home.

There are not a great many patterns sold in valentine lace paper; and nearly all valentines are made from combinations of these with the German embossed flowers (such as are seen mounted on cardboard), small leaves, very small flowers, &c.; from the milliners, or linendrapers, coloured aerophanes, gauze, net, gelatine, and similar appliances. We do not admire those valentines which are made up of much millinery, but prefer the use of paper.

The sheets of valentine paper we refer to are sold for twopence each. They can also be had in enamelled paper, picked out with gold and silver, which of course are more expensive. Two sheets are always required to make a valentine in a box; but pretty ones may be made from a single sheet.

One of the prettiest valentine papers is composed of a small plain oval, surrounded by smoke issuing from a vase; all the rest of the paper is covered with palm-trees, cut out like fret-work. At the base of these palms is a statue; below the statue sits a classic maiden holding a lyre, and giving ear to a story Cupid has just brought her. To use this paper: First way—Cut out the oval and the smoke from the centre. Line it entirely with white tulle, or pale pink aerophane. On the inside of the note sheet place or draw a bouquet of flowers, with a motto beneath them, in such a manner that the flowers may show through the aerophane in the centre, but not the motto. Second way—In a box place a piece of coloured paper, inside the note sheet of embossed paper, after cutting out the oval in the centre as before, and on this gum a group of flowers, a photograph, or anything you fancy. Pink, bright green, and crimson are the most effective colours for the purpose. Silk or satin, or even aerophane, is richer than paper in effect. Fold up four narrow strips of paper, backwards and forwards like an accordion or a dressmaker's pleating. These form four springs. Gum one end of each to one of the four corners of the paper in the box. Take another sheet of the paper, cut out the oval and the smoke; gum it to the other ends of the four paper springs. Then raise the springs by drawing them out, and the paper at the top will come as high as the top of the box. Third way—Cut out the oval centre and smoke, and mount the paper on crimson satin. In the centre take one or two small figures cut from another sheet, coloured nicely, and glazed over with gum. A Diana and Endymion followed by a dog is suitable in size, and can be found on one of the sheets of lace paper published. Place them in the centre of the satin, or use a few flowers bought at the linendraper's. It may be a sprig of tiny pompon roses and little leaves, which should be placed on white satin, or forget-me-nots on white. Small white flowers, such as elderberry or London pride, can be used; snowdrops look very well, so do lilies of the valley. These must be nicely grouped and sewn to the satin; but when artificial flowers, as they are called, are used, a box is necessary. The valentine should then be gummed to the box, and a second sheet raised above it as before described. The paper picked out with gold and silver is very rich over dark-coloured satin, such as plum-colour or violet. A group of flowers in water-colours in the centre is suitable, with or without a box.

A pretty way to ornament paper valentines, is to make a transparent gum of a little isinglass dissolved in warm water. Brush it over the whole sheet of paper lightly, and sprinkle it well with thin blown glass, which can be purchased at some of the tinsel and spangle shops, and where theatrical figures and fireworks are kept. It must be powdered in a mortar. The diamond dust kept by hairdressers is the same kind of thing; the gold and silver dust may also be used.

Another pattern of lace paper represents a mosque surrounded by palms. Cut out the mosque entirely, and mount the palms over a picture or over satin or silk with an ornament in the centre. At the bottom of the paper, if the valentine is in a box, arrange a bouquet of leaves and flowers just under the bridge. This paper makes up well over bright emerald-green aerophane, with a bunch of red rosebuds and leaves tied by a gold cord in the centre. If in a box, raise it with a second sheet of the same.

A very handsome valentine may be made by mounting a square or oval picture on satin, and framing it with a row of pearls, or coral or gold beads. It is easiest to do this by lining the box first with the satin, then tacking on the picture, and lastly the beads. Edge the satin all round the box with white blonde lace, very narrow, and a narrow gold braid, or purse twist of gold. Then mount over this a sheet of either of the patterns No. 1 or No. 2, crystallised, gilt, or silvered. Blue satin and beads, green and gold, violet and silver, crimson and pearl or gold, golden yellow and pearl, all look well. So does pink and pearls, or blue and silver. White can be used with gold or coral. If under the satin a little wadding and scent is used to make a sachet of it, raising it slightly like a pincushion, the valentine is improved. The picture and beads must then be attached first to the satin. An edge of small flowers and leaves instead of the blonde is also pretty, especially any colour with white, crimson with green, and white with violet or crimson. If the picture is drawn in water-colours by the sender, its value is much greater. Next to this, a photograph of the sender, vignetted in an oval, is pretty. Hair prettily twisted and arranged, or flowers beautifully dried by the "Nature-printing" process, may be applied with advantage to making valentines.

Another pattern forms one of a distinct kind, in which rather large figures occupy a great portion of the paper. All these figures look well cut out and used alone. Make a sachet of satin, double, and removable from the box. Let it be of some beautiful full shade of colour, such as violet, cerise, crimson, or azure-blue. Edge it with a white blonde lace, and a gold twist tacked round, or run in the blonde. Of course the wadding that fills the sachet is scented. At each corner put a pompon rose and two or three little leaves. Cut out the figures from one of the sheets of paper; gum them, but not letting them be wet, and fasten to the centre of the right side of the sachet. To send it, tack it inside a box.

Second way—Line a box at the bottom with silk or satin, or coloured gelatine. Cut out the figure and gum it on. Raise the border from which the figure is cut on four springs, and place it over the figure in the way before described. All these figure valentines look well if made up thus.

Third way—Simply take the sheet of paper, line it with a sheet of coloured silk, satin, aerophane, gelatine, or even of coloured tissue paper. A bow of narrow white satin ribbon tacked below the figure, with a motto written in colours on it, or a scroll or little wreath of flowers bearing a motto, may just be added or not at the bottom of the paper, or a few words or a simple motto can be carefully written in fancy letters on the reverse.

One pattern is a figure of a young girl, led forward by two Cupids. It is nearly the full size of the paper. In cutting out the figure, reject the leaves and roses around her. If the rest of the paper is used as a border to a box, raised over the figure, cut away the oval bordering of daisies. The floral scroll border is best alone.

Another pattern is that of a lady touching a guitar, and a gentleman in mediæval dress bending over her. To use these figures alone, cut out the entire oval, trees and all, and apply it.

A fifth pattern bears figures of a classic bride and bridegroom carrying a child, Hymen, the deity of marriage, on their shoulders. They stand under an arch of lace drapery. To use these figures, cut them out entirely. The arch of lace and roses must then be cut out from the rest of the border, and rejected for present use. The vases of flowers, the Cupids in the corners, and the lace hangings above, look best alone.

A sixth pattern represents a lady and gentleman in the Watteau costumes, seated beneath lace curtains, and beyond there is a handsome border. To use these figures separately, cut them out with the ottoman and the ground beneath their feet. To use the border, cut away the lace curtains up to the lilies held by Cupids.

A seventh pattern is a youth at the feet of a lady, in a bower of grapes and roses, animated by Cupids. Behind is a terrace. To use these figures alone, cut the outline of the youth's figure to the tip of the toe on the left side; leave the ground beneath them to a level with the extent of the lady's robe on the right, but cut it away from the vine beneath; also cut away the flowers between the figures. These two figures do not look so well as the others together, but the lady alone makes a pretty centre for a valentine, if coloured.

Another way of using the figures cut out separately is to colour them naturally, and then varnish them several times with strong gum-water, letting each coat dry before the next is added. When finished they look like china.

There are other devices of lace-paper to be purchased, both of the same size and smaller than those described. The numbers affixed here are not trade numbers, but merely our own suggestion, for distinction.

Sheets of lace or embossed paper, with the centres removed, always make pretty frames for drawings, photographs, coloured prints, or rice-paper drawings. The spaces may be filled with gelatine, or net, over a picture fitted exactly to the aperture, and coloured tissue slipped in behind. If lined with silk, pretty groups of muslin flowers, or of real seaweeds, can be placed on them.

Valentines made in boxes, with white or coloured silk or satin tacked to the bottom of the box, and edged round with a *passementerie*, may not only be made of groups of dried flowers, but of seaweeds, skeleton leaves, or autumn leaves, carefully prepared and tastefully contrasted in colour. Water-colour drawings on vellum, also, are quickly done and very effective.

By constructing the missive of the 14th of February of beautiful natural productions, or other more artistic evidences of the sender's talent and taste, the token of friendship or love can be rendered valuable and uncommon. Coloured flowers embroidered on satin are not unfit for valentine centres.

To put up boxes with taste, if they can be sent by hand, fold them very nicely in coloured tissue-paper, and tie with narrow satin ribbon, gold twist, or purse-silk. Place each in a sheet of white letter-paper, and bind with ordinary fine twine.

Our present remarks are intended merely as suggestions which an ingenious person can easily follow and enlarge by looking at the best valentines exposed in the shop-windows. The portions of paper rejected from one missive can be used in another.

Water-colour flowers in silk or satin should be thus managed:—Procure a bottle of thick Chinese white. Dilute a small portion of this to half its thickness. Draw the bouquet of flowers over this. When dry, proceed to use the colours, mixing the white with all. Take the lightest tint, and cover each flower and leaf entirely. When dry, shade and detail, without using any white.

MANUFACTURE OF STEEL PENS.

STEEL PENS are manufactured from the best description of steel that can be obtained, that made from Swedish iron being usually employed in its manufacture. For making a steel pen, the metal is first rolled, while red-hot, into plates about three feet in length and four inches broad. The plates are annealed, by being made hot and slowly cooled, and all oxide is removed from their surfaces, by immersing them in dilute sulphuric acid, which dissolves it away. The plates are then rolled into sheets the thinness of a steel pen. These sheets are cut into pieces, and are afterwards punched out into flat pieces, the size and shape of the future pen, care being taken, in doing this, that the length of the pen should correspond with the fibres of the metal. The hole at the end of the nib, and the side slits that give flexibility to the pen, are now made, and are cut at a small press. Although in its present state the steel of which the future pen is made is so soft that it may be bent between the fingers like lead, yet it is not sufficiently soft for the process it has to undergo before it assumes a perfect state, and then is again softened by annealing.

This is performed by again exposing them to heat, and allowing them to cool slowly. When this is done, the name or trade mark of the manufacturer, ornamental device, or other impression, is stamped on the surface of the metal. Up to this point the future pen is perfectly flat; it is now made to assume its curved state. For this purpose it is placed in a groove beneath a press, and a convex die descending powerfully on it bends the metal into the required shape.

The pens are hardened by exposing them to a white heat and then suddenly throwing them into a vessel of oil, any oil that may adhere to them being afterwards removed by shaking them in a cylinder. It is now necessary to temper the metal to the degree of elasticity required for writing. For this purpose the pens are placed in a cylinder closed at one end, which revolves over a charcoal fire; this process being not unlike the manner in which coffee berries are roasted. By being exposed to this heat the surface of the steel changes its colour. It becomes a grey, a straw-colour, a brown, and, as the process is continued, a deep blue.

The pens are then placed in a metal cylinder containing the powder from broken crucibles, sand, &c., and caused to revolve rapidly, by which means the surface of the metal becomes perfectly clear and bright. After this the backs of the nibs of the pens are ground. This is done by applying them for an instant, one by one, to the surface of a revolving wheel. Then the slit between the nibs is cut, by means of a small die press.

The steel pen is now finished, and only requires to be coloured brown or blue, by exposure to heat, until it assumes the tint required. The pens are then varnished, by being dipped into shellac, dissolved in spirits of wine or naphtha, and exposed to a moderate heat to dry them.

HOUSEHOLD AMUSEMENTS.—XXXI.

ARCHERY (*continued from p. 296*).

Selection of the Bow.—When the target is fixed, and the archers are preparing to shoot, proper bows must be chosen, if each person is not prepared with his own. The bow selected must be suitable to the strength of the person about to shoot, who should be careful that it is not too strong for his power, and that he can draw the arrow to its head without any trembling of the hand. If this cannot be done after a little practice, the bow should be changed for a weaker, for no arrow will go true if discharged by a trembling hand. The bow should be nearly the height of the person who uses it, and the arrows something less than half the length of the bow.

Selection of Arrows.—For a bow of five feet eight inches in length, the arrows should be two feet four inches long. For a lady's bow of four feet ten inches, the arrows should measure about two feet.

To String the Bow. Take the bow by the handle (D, Fig. 1, page 297 of this volume), in the right hand; place the bottom end, B, upon the ground, resting against the hollow of the inside of the right foot, keeping the flat side of the bow (called the *back*) towards you; the left foot should be advanced a little, and the right so placed that the bow cannot slip sideways. Place the heel of the left hand upon the upper limb of the bow, below the eye of the string. Now, while the fingers and thumb of the left hand slide this eye towards the notch in the horn, and the heel pushes the limb away from the body, the right hand pulls the handle towards you, and thus resists the action of the left, by which the bow is bent, and at the same time the string is slipped into the "nock," as the notch is termed. Care must be taken to keep the three outer fingers free from the string, for if the bow should slip from the hand, and the string catch them, they will be severely pinched. If shooting in frosty weather, warm the bow before the fire, or by friction with a woollen cloth. If the bow has been lying by for some time, it should be well rubbed with boiled linseed oil before using it.

To Unstring the Bow.—Hold it as in stringing; then press down the upper limb exactly as before, and as if you wished to place the eye of the string in a higher notch. This will loosen the string and liberate the eye, when it must be lifted out of the nock by the forefinger, and suffered to slip down the limb.

Before using the bow, hold it in a perpendicular direction, with the string towards you, and see if the line of the string cuts the middle of the bow; if not, shift the eye and noose of the string to either side, so as to make the two lines coincide. This precaution prevents a very common cause of defective shooting, which is the result of an uneven string throwing the arrow aside.

ATTITUDE WHEN SHOOTING.

After using the bow, unstring it; and if a large party is shooting, after every "end" it should be freed from its state of tension. But in this respect there is a great difference in different bows, some good ones soon getting cast from their true shape, and others, though inferior bows in other respects, bearing any ordinary amount of tension without damage.

The Position (see Illustration).—When preparing to shoot, allow the body to assume a graceful attitude, yet one at the same time suitable for the object. Stand at right-angles with the target, with the face turned over the left shoulder; the feet firmly placed, not quite close together, and the left foot turned towards the mark. The head should be inclined rather forward, but the body straight from the waist. Keep the longer limb of the bow upwards (if held the other way it may break; and be careful not to overdraw the string or snap it without an arrow attached.

To Shoot at a Target.—Nock the arrow (that is, place it on the string; to do which take the bow in the left hand, with the string towards you, the upper limb being towards the right. Hold it horizontally while you take the arrow by the middle. Pass it on the under side of the string and the upper side of the bow, till the head reaches two or three inches past the left hand; hold it there with the forefinger while you remove the right hand down to the nock. Turn the arrow till the dark feather is uppermost; then pass it down the bow, and fix it on the nocking point of the string. Avoid contact with the feathers, and smooth them with the hand if rubbed out of place.

To Draw the Bow.—Hold the bow with the left hand; straighten the elbow; place the arrow as directed, shooting-glove on the fingers. Place a finger on each side of the arrow on the string, and the thumb on the opposite side to steady it; then raise the bow at the full length of the arm till the right hand reaches nearly to the level of the shoulder and the left is opposite the target, when, by drawing the right hand to the ear, and the left towards the target, the arrow is brought to a direct line with the bull's-eye; and at that moment it must be allowed to fly.

In drawing the bow, the attention should be steadily fixed upon the target alone; and to secure the arrow in its place turn the bow a little obliquely, so that the handle and your knuckles will together form a groove for the arrow to run in. If the string is held too far up it will twist in the drawing, and the arrow be consequently thrown off from resting against the bow. The proper length is midway between the ends and the first joint of the fingers. Three fingers may be used, but the arrow should be between the first and second.

Two points must be attended to when taking aim—the lateral direction and the distance—since there is no bow which will drive an arrow many yards perfectly point-blank, and consequently a slight elevation must in all

cases be made; and for long distances, with weak bows, a very considerable elevation—that is, the bow must be raised above the point aimed at. The arrow cannot be shot straight at an object, because it will of course be subject to the earth's attraction, and if shot straight at a mark will fall below it; and it therefore requires experience and practice to manage the elevation properly, and much will depend on the exact strength of the bow and the distance of the shot. The lateral direction—that is, the side to which the bow should be directed—depends greatly on the wind, if there is any, as the arrow is materially affected by the wind. Should it blow from the right hand, the bow must incline towards it; to the left, if from the left.

The distance to which an arrow can be shot from a long-bow, with the elevation of forty-five degrees, depends on the strength and ability of the archer; the distance used to be reckoned from 220 to 240 yards. The Turks have always been celebrated for shooting to long distances, and the Secretary to the Turkish Ambassador shot, in 1794, a distance of 415 yards. He used a Turkish bow and arrow, and shot against the wind; with the wind the distance measured 482 yards. This feat of archery took place in a field behind our present Bedford Square, London.

The eyes should not be fixed on the arrow, but at the mark; keep both eyes open, and look steadily forward, not from the mark to the arrow and back again; and raise or lower the bow in the proper direction.

The targets are fixed opposite each other, at about sixty yards apart. The arrows are shot first to one target, when the archers pick up or extract the arrows, and the marker scores for each before drawing from the target, after which the archers shoot back again to the other end, and so on until the whole number of ends have been shot.

Butts are also used to shoot at, being built of long mounds of turf about eight or nine feet long, and five wide; the height about seven feet, the depth diminishing gradually from the bottom to the top. When more than two are used they are ranged in sets, each set consisting of four, about thirty yards apart, and forming a chain of lengths of thirty, sixty, ninety, and one hundred and twenty yards, but so disposed as not to stand in the way of the archers when shooting at any of the lengths. Against the front of the butt is placed the mark, which is a circular piece of thin white pasteboard fastened by a peg through the middle. The size of the mark for thirty yards is four inches in diameter; for sixty yards, eight inches, and so on, increasing in diameter in proportion to the distance. Shots in the butt missing the mark are not scored, and he who makes the greatest number of hits is the winner. If two are alike, the nearest to the central peg is successful.

In flight shooting, which is merely a trial of distance, he who can shoot the farthest is the winner.

When archers rove from place to place, and have no fixed target, it is called "rovings." The archers shoot at trees, or any other object they choose. The winner of the first shot chooses the next, and so on, the distance being from 100 to 200 yards; and all arrows falling within five bows' length scoring, if nearer to the mark than the adversary's arrow

Cross-bow shooting is now seldom used excepting for rook shooting, but the pea-rifle is more generally used. The cross-bow is a bow set in a frame, which receives the arrow, called a bolt, and this bolt is discharged by a trigger.

The dress worn at archery meetings is very pretty and becoming—for ladies a green cloth jacket, with a black velvet dress, and a green hat and black feather. In warm weather the green jacket is silk, worn over a white muslin dress. The costume for gentlemen is dark green, with green hat and feather, but this entirely depends upon the taste and inclination of the wearer.

RULES OF ARCHERY MEETINGS.

1. A lady paramount to be annually elected.
2. That there be —— meetings in each year, the gentleman at whose house the meeting takes place to be president; and that every member intending to shoot should be on the ground by —— o'clock; the shooting to commence at ——, and to terminate at ——.
3. That all members intending to shoot shall appear in the uniform of the club; and that a silver badge be worn by every member of the society, or a forfeit of —— shillings will be enforced for such omission.
4. That the secretary do send out cards at least a month before each day of meeting, acquainting the members with the day and place of meeting.
5. That there shall be four prizes at each meeting, two for ladies and two for gentlemen, the first for numbers, the second for hits, and that no person shall be allowed to have both on the same day; the sum of —— pounds to be placed at the disposal of the "lady paramount" for prizes at each meeting.
6. That the winner of a prize or prizes shall lose a ring for each prize won, but that a ring be returned at or after any subsequent meeting at which each member shall shoot without winning.
7. That in case of a tie for hits, numbers shall decide; and in case of a tie for numbers, hits shall decide.
8. That the decision of the "lady paramount" shall be final.
9. Two prizes to be given at each meeting for strangers, of the value of .
10. That there be a challenge prize of the value of ——, and that a commemorative silver ornament be presented to winners of the challenge prize, to which a clasp be added on future occasions.
11. That the distance for shooting be sixty and one hundred yards, and that four-feet targets be used.
12. That each shooter be allowed to shoot —— arrows, distinctly marked or coloured.

The implements for archery are not expensive. Bows last a long while; arrows may be lost, but with the exception of these, the first cost may be considered the only one.

CHEESE AND CHEESE-MAKING.—I.

THE best season for making cheese is from the commencement of May to the close of September: or, under favourable circumstances, until the middle of October, during which interval cows are generally pastured.

The perfection of cheese-making consists in separating the curd and butter in one mass from the water and sugar; these last ought to be wholly taken out in the whey. In well-made cheese, such as the North Wilts, Cheddar, and some double Gloucester, this is effectually done, as may be easily tested by toasting; whereas, in many Cheshire, and particularly rich American cheeses, the caseine and butter are seen to separate in toasting. Age also causes this separation. The strong flavour of Cheshire cheese is attributable to the whey not being so well separated as in the North Wilts, Gloucester, &c. Using too strong rennet produces the same effect.

To Prepare Rennet.—The first process in making cheese is to separate the curd from the whey, which may be done by vegetables containing acids which readily coagulate milk, as the juice of the fig-tree, and the flowers of the lady's bedstraw, hence called *cheese-rennet.* Where better rennet cannot be procured, they may be substituted for the most natural curdler of milk, which is the gastric juice of the stomach of a sucking calf. Its preparation is the most important part of the process of cheese-making.

The following is the simplest, and perhaps the best :—As soon as a sucking calf is killed, the stomach should be taken out, the outer skin should be well scraped, and all fat and useless membrane carefully removed. It is only the inner coat which must be preserved. The coagulated milk should be taken out and examined, and any substance besides curd found in it should be carefully removed; the serum left in it should be pressed out with a cloth. It should then be replaced in the stomach with a large quantity of the best salt; some add a little alum and sal prunella, others put various herbs and spices; but the plain simple salting is sufficient. The skins, or rolls as they are called, are then put into a pan, and covered with a strong solution of salt, in which they are soaked for some hours; but there must be no more liquor than will well moisten the rolls. They are afterwards hung up to dry, a piece of flat wood being put crosswise into each to stretch them out; they should be perfectly dry, and look like parchment. In this state they may be kept in a dry place for any length of time, and are always ready for use. In some places, at the time of making cheese, a piece of a roll is cut off and soaked for some hours in water or whey, and the whole is added to the warm milk. In other places, pieces of roll are put into a linen bag and soaked in warm water until the water has acquired sufficient strength, which is proved by trying a portion of it in warm milk. Half a pint of the liquor of proper strength is sufficient to curdle forty gallons of milk. Experience alone enables the dairyman to judge of the strength of his rennet. For this purpose he takes in a flat ladle some milk which has been heated to about 90° Fahr., and adds a small measure of rennet. By the rapidity with which it curdles, and the form of the flakes produced, he knows its exact strength, and puts more or less into the cauldron in which the milk is heated for curdling.

It has been observed that badly-prepared cheese has sometimes, though rarely, become poisonous by keeping, but the cause of this change has not been ascertained.

By skill and attention excellent cheeses are made in places where the pastures are not considered so well adapted to produce milk of a proper quality, and in those countries where the cows are usually kept tied up in stalls, and are fed with a variety of natural and artificial foods, superior cheese is often made. The poorer the cheese is, the longer it will keep; and all cheese that is well cleared from whey, and sufficiently salted, will keep for years.

The Making of Cheese is simply as follows:—The milk is heated in a cauldron to blood-heat, and is then taken off the fire; and some rennet is added, well stirred with the hand, and covered up for two hours, or until it becomes curdled. The curd is then cut into slices, and turned over, the better to press out the whey; it is taken out again and broken by the hand, or cut into small pieces, and then put into a cheese-vat, where it is strongly pressed by the hand, and with weights, to extract the remaining whey; it is then pressed, salted, and dried, and becomes good cheese. If coloured, a quarter of an ounce of Spanish annotta will suffice for a cheese of sixty pounds; or marigolds boiled in milk, or orange carrots scraped and boiled in milk may be used for colouring.

In making very rich cheeses the whey must be allowed to run off slowly, because if it were forced rapidly it might carry off a great portion of the fat of the cheese. To collect this superabundant butter the whey is set in shallow pans, and an inferior kind of butter, called *whey butter*, is made from the cream or fat skimmed off.

To insure a rapid and complete separation of the whey from the curd, has led to the construction of a pneumatic cheese press, described in the *Transactions of the Highland Society of Scotland*, by which the whey is separated from the curd by subjecting it on its upper surface to the pressure of the atmosphere, while this pressure is partly removed from the lower one. This press consists of a stand, on the top of which is a tinned copper or zinc vessel to contain the prepared curd. This vessel has a bottom of ribbed work, covered with wire-cloth, from which a small tube, nearly twelve inches long, communicates with a close vessel, to contain the whey drawn from the curd in the upper vessel. At one side of the stand is a small pump-barrel, from the bottom of which a suction pipe communicates with the top of the whey vessel, the suction pipe terminating at its upper end in a valve opening upwards; and a piston, with a similar valve, is placed in the pump-barrel, and worked by a jointed lever. The process is as follows:—The curd being prepared and salted, a cloth is put over and into the upper vessel, and the curd put lightly into it, excepting round the edges, where it is packed so closely to the sides of the vessel that no air can pass that way; the pump-handle is then briskly worked for a few minutes, on which the pressure of the external air forces the whey to run down the tube into the whey vessel; when it ceases to run a few strokes of the pump may be repeated. The cloth and its contents are then lifted out of the curd vessel and put into a mould of close wire-work, and a weight is placed over it, till it becomes firm enough to be handled. The mould should stand on a sparred shelf, to allow the air free access.

Cheese, if kept in a cellar, should be cool, not damp, and turned and brushed once or twice a week. Elder-leaves, if rubbed on the shelves, will, by their scent, drive away insects. Dry moss, or fine hay, will prevent new cheeses adhering to the shelf or becoming damp; it also prevents their drying; later they may be laid upon straw. The cracking of cheese usually arises from the exterior drying too fast before the interior has become firm, the cheese-room not being sufficiently cool. If exposed to a cool, dry, and calm air upon the shelves, the cheeses will dry by degrees, and obtain a firm skin; they should be wiped with a dry cloth to remove any moisture, and repeatedly turned. To save labour in turning many cheeses for the drying-room, has been invented a movable frame or rack, with shelves, the end posts being fastened to the floor, between which is poised the shelf-frame, which, being provided with an iron latch at top and bottom, is turned over with the cheeses upon the shelves.

Cream Cheese.—Take a quart of cream, and if not desired to be very rich, add thereto one pint of new milk; warm it in hot water till it is about the heat of milk from the cow; add a tablespoonful of rennet; let it stand till thick; then break it slightly with a spoon, and place it in the frame, in which you have previously put a fine canvas cloth; press it lightly with a weight; let it stand a few hours; then put a finer cloth in the frame, and shift the cheese into it. Sprinkle a little salt over the cloth. It will be fit for use in a day or two.

To make a rich cream cheese, without rennet, take any quantity of cream and put it into a wet cloth; tie it up, and hang it in a cool place for seven or eight days. Then take it from the cloth, and put it into a mould, in another cloth, with a weight upon it, for two or three days longer. Turn it twice a day, and it will soon be fit for use.

Or, take a quart of fresh cream and a pint of warm new milk, a bit of sugar, and a little rennet. Set near the fire till the curd comes; fill a vat made in the form of a brick, of wheat-straw, or rushes, sewn together; rest the vat on a square of straw or rushes, and cover it with another square, the vat being open top and bottom. Next day take it out, turn daily till dry from one board to another, cover with nettles or clean dock-leaves, and put between two pewter plates to ripen.

Cream Cheese (American).—Melt over the fire a tablespoonful of butter in a quarter of a pint of cream; mix with it a pound of good cheese, finely grated; beat all well together, and pour it over buttered toast; brown with a salamander, and serve hot.

WATER-COLOUR DRAWING ON WOOD.

(*Continued from p. 273.*)

THE accompanying illustrations represent farther and more advanced specimens of the manner in which we may apply this art, which when once acquired, by the outlay of but little trouble or expense, cannot fail to yield an inexhaustible supply of amusing occupation for those who have spare time on their hands. Fig. 1 represents a *bon-bonnière* made with a framework of cane laths with panels of lime-wood. The design for the top of both Figs. 1 and 2 is given about full size in Fig. 3. The initial or monogram may be replaced by some other design if desired. Fig. 2 is a small toilette-box or work-box, made entirely of maple, and ornamented with painting in the same manner. We have given a detailed explanation, at page 273, of the way in which the process is conducted, which will apply equally to these illustrations. With the exercise of a little of the ingenuity with which we credit our readers, these designs can be adapted to any size or shape required, for it will rarely happen that the same article that we give is on hand, and we wish to cause as little absolute outlay for raw materials as possible, encouraging them to make the most of what they have. Independently of the process of water-colouring, the designs given are in themselves pleasing, and may easily be adapted to other purposes of ornamentation.

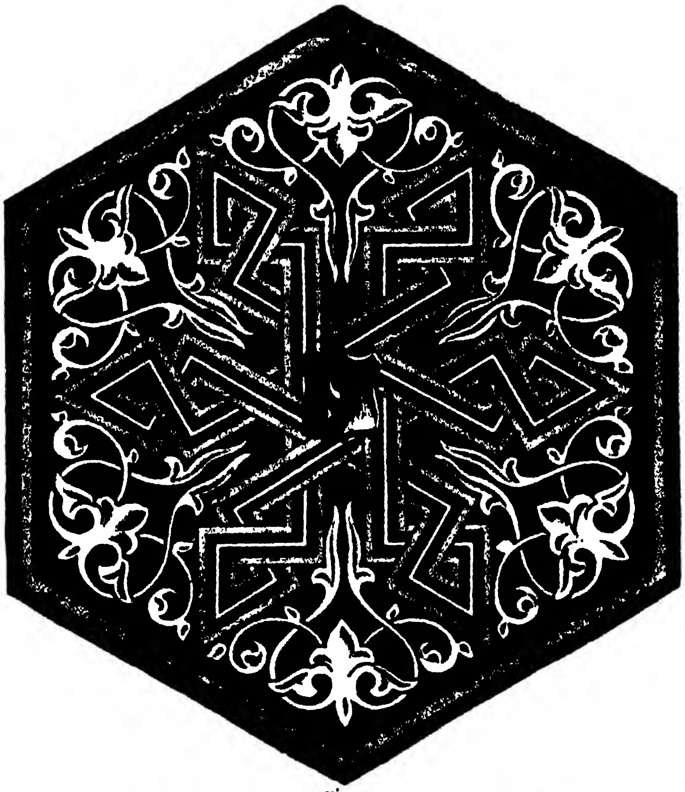


Fig. 3.

Fig. 1.

Fig. 2.

RIDING FOR LADIES.—I.

WHATEVER is worth doing at all is worth doing well; and, moreover, there is a wrong way as well as a right way of setting about most things. It rarely happens that the right method comes intuitively. Now, with regard to riding, it is by no means so easy to ride properly, and bad habits are acquired with peculiar facility, and yet many attempt to ride without instruction; the consequences being, that if they are ever to do it well, a great deal of time will have to be taken up in curing bad habits.

There are certain rules which govern the art of riding that should be mastered by all who desire to ride properly; these we propose to lay before our readers, together with some useful information on the same head, warning them, however, that though we may thereby be materially assisting them, no mere treatise can teach all that is to be acquired, and that the aid of a competent riding-master must be called into requisition. A few good practical lessons are invaluable; they impart confidence as well as knowledge. Those who have already profited by such instructions will possibly be reminded of some particulars that have escaped their memory.

There are few exercises which are more delightful or more health-giving, and none in which Englishwomen more peculiarly excel; further, ladies rarely show to such advantage as when mounted.

To begin with the all-important matter of *dress*. The chances are, a woman will not ride well unless she is suitably attired. In minor matters, the fashions with regard to the habit change from year to year. There may be a basque all round, or only a small one of the jockey form at the back, diminishing to a mere nothing in front; the sleeves may be more or less tight, set higher or lower in the shoulder; the braiding introduced largely or but little; the skirt more or less gored; but the leading characteristics remain the same. It should fit the figure well, but not too tightly; the bodice should be firmly secured to the skirt, which is now generally carried out by long hooks in front and silk tabs beneath the basque, which are buttoned on to corresponding buttons on the skirt. Happily, as far as comfort is concerned, short skirts are in vogue, 51 and 55 inches being the usual length, 48 inches the ordinary width, the two sides being cut differently in order to give scope for the left knee and diminish the bulk beneath the right. A habit requires to be tailor-made, and it is cheapest in the end to go to the best makers. Dark green, black, but more than all, dark blue, are the favourite colours; for town wear and park riding a thin cloth is best, but this would not stand rough country weather, where a thick serviceable cloth is better. For hunting, the skirt should be bound with leather a quarter of a yard deep. Some habit makers place an elastic strap for the left foot about a quarter of a yard above the hem, to keep the skirt from flying up; but in case of an accident, this might be very much in the way. In the colonies and abroad, linen, holland, and light tweed habits are often adopted, but cloth is best at home. Nothing but riding trousers should be worn beneath the habit; underskirts are to be avoided as unsightly and uncomfortable. These trousers should be made of cloth or washleather; in the latter case, booted with cloth above the ankle. Care should be taken to strap them well down beneath the foot.

Special boots should be kept for riding, the Wellington are the best. They should be broad toed and large, for the feet are apt to get cold, and the tendency is increased if they are at all compressed. The heel should be broad also and low; high heels are totally unsuitable, and also small wasted boots. Thick leather and doeskin gloves are best two sizes larger than for ordinary wear, or the hand becomes cramped.

It is also advisable to have stays on purpose for riding: these should be short. Many women wear riding belts.

Dress on horseback should be characterised by excessive neatness, straight linen collars and cuffs, no ribbons or flying ends, the hair dressed very plainly and *very* securely, the hat firmly placed on the head. Nothing leads to greater discomfort than a disregard of this necessary precaution.

Tall "chimney pot" silk hats are the rule for riding, the brims wide or shallow, the crowns high or low as the mode changes. Cloth or felt hats can now be had of the same form, but where the usual riding hat is not worn it is generally replaced by a low round-crowned felt.

A riding whip completes the equipment of an equestrian. This should be light, and not too supple, or with careless handling it may unawares touch the horse. One word as to spurs: these are rarely worn save in the hunting field, but a good rider must know how to use them. The thing to avoid is applying them unintentionally; to prevent this the left foot must be kept as straight as possible, the toe as much inclined towards the horse as the heel, and the shank of the spur must be the right length.

To ensure good riding some attention should be bestowed on the *accoutrements of the horse*. A flat saddle apportioned in size to its rider, having the third crutch, which imparts a great sense of safety, should be secured with a padded stirrup; a slipper is dangerous and objectionable.

In order to show to the best advantage on horseback, the rider must have a good seat, nerve, and a light hand, and to enjoy her rides she must know how to act on emergencies; this confidence can only be obtained by thorough knowledge and practice.

The first point is to know how to mount easily and gracefully.

On foot the habit should be held up in both hands, just sufficiently to make walking easy, and to prevent the back of it trailing in the dust; this requires some care and previous thought, for it is unsightly to hold it at all high. It is best at first to ascertain the easiest method of arranging it before a cheval glass.

To mount, hold the whip in the right hand, with the lash upwards, and drop the habit, standing just in the rear of the pommel parallel to the side of the horse.

The groom, or whoever is about to give the necessary aid in mounting, presents the reins; take them loosely in the right hand, which place on the pommel. The whip, which is also held in the right hand, should in no wise be allowed to touch the horse.

It is now the duty of the man in attendance to place either his right hand, or the two hands with the fingers interlaced, ready for the rider's left foot. This she places upon it, with the left knee slightly bent, her left hand resting lightly on his shoulder. Two movements are necessary: at the first, bend the right knee; at the second, spring, and straighten the left knee, by which means the lady is easily lifted into the saddle. Much, however, depends on the assistance given, which must coincide exactly with the spring, and occur at the same instant. A little practice soon ensures this.

Just one word as to the reins, which consist of the curb and the snaffle. When they are handed to the lady, the bit-rein is in the centre, and a little tighter than the snaffle. She takes them in such a manner that her forefinger is in the centre, and drawing the hand back, they glide evenly through her fingers until she grasps the buckle piece, so that in raising her hand to the pommel, they rest between.

A CHEAP WEATHER-GLASS.

TAKE a broad-necked bottle, such as are used for pickles or fruit-jellies, and fill it with water within two or three inches of the brim; turn a clean oil-flask upside down, with its neck within the pickle-bottle. Should the weather be set fair, the water in the neck of the flask will remain about half an inch above the level; but if rain be near the water will rise gradually but quickly in the neck of the flask; and if rain be very near, and the atmosphere in consequence very heavy, the water may rise in the flask's neck as much as two or three inches within a few hours. No one should be without this useful instrument; it gives no trouble; the water does not require changing—out-doors or in-doors, heat or cold, are alike immaterial. In frosty weather it should not be forgotten that this instrument must be kept in a temperature above freezing, otherwise it cannot act; and should the bottle be left full of water it will probably break in the ordinary course with the congelation of the water.

It is obvious that this simple apparatus will not indicate with scientific precision the amount of moisture in the atmosphere; but the warning given by the rise of the water in the neck of the flask may be sufficient to prevent disappointment in domestic arrangements, especially with regard to such an important matter in the household as the selection of a good "drying day" for the family wash, a matter of great interest to the careful housekeeper. For a description of barometers, see vol. iii., p. 129.

COOKERY.—LXVI.

FRENCH DISHES (*continued from p. 295*).

Potage au Riz Maigre à la Purée de Pois Verts (*Rice Soup, with Green Peas*).—Take a sufficient quantity of rice, and wash it four or five times in water moderately warm. Add to it some thin stock, and boil it for an hour and a half. When the rice is cooked, add, about an hour and a half before serving the soup, some *purée de pois verts*, taking care at the same time that they are well mixed, and neither too thin nor too thick.

Potage au Vermicelle (*Vermicelli Soup*).—For this dish, care must be taken that the vermicelli is not too old, and that it has not acquired any taste: the Italian vermicelli is by far the kind best suited for the purpose. Have in readiness a sufficient quantity of good stock for the purpose, and having passed it through a silk sieve, pour it in a saucepan, and put it on the fire. When it is boiling, put in the vermicelli, and continue to boil it for half an hour. At the end of that time, it must be removed from the fire, that the vermicelli may not be over-cooked, and become injured. Four ounces of vermicelli are sufficient to form soup for eight or ten people, for it must not be prepared too thick.

Potage au Vermicelle au Lait (*Soup of Vermicelli and Milk*).—Put the vermicelli into a saucepan of milk, taking care to separate it well as you do so. Place the pan over a gentle fire, and keep stirring it frequently, that the vermicelli may not collect together. When this has been done for half an hour, the vermicelli will be sufficiently done, and may then be sweetened well and sent to table.

Vermicelle au Lait d'Amandes (*Vermicelli with Milk of Almonds*).—Prepare some vermicelli in the way previously directed. When ready to send to table, mix it with some milk of almonds—see *potage au riz*. This dish must be served up hot, well sweetened, and seasoned with a small quantity of salt.

Vermicelle aux Oignons (*Vermicelli with Onions*).—Cut some onions into thin slices, and prepare a potage in the manner directed for *potage au riz*. When the vermicelli is put in, it should be boiled for half an hour.

Vermicelle à la Jardinière (*Jardinière Soup with Vermicelli*). To prepare this, the vegetables directed for *potage à la jardinière* should be cut into slices, instead of in the form of dice, the vermicelli must not be put in until they are cooked, and the scum must be frequently removed. The preparation is to be seasoned with salt and coarse pepper.

Potage à la Semoule (*Soup with Semolina*).—Strain some stock broth through a sieve, and put it in a stewpan over the fire. When it boils, place the semolina in it, and stir the contents of the pan frequently while cooking, to prevent the semolina from adhering to the pan, or forming lumps. In half an hour it will be done, when the vessel must be taken from off the fire, at the same time carefully removing any fat that may be observed floating on its surface.

Potage au Tapioca (*Tapioca with Milk*) is prepared in a similar manner to the last, tapioca being substituted for semolina.

Au Riz aux Oignons (*Rice with Onions*).—Cut the onions into pieces the size and shape of dice, using only the bulbs for that purpose, the other parts of the onion not being suitable. Then put them in a pan with a little butter, and let them remain on the fire until brown. Then pour in sufficient water to make the required quantity of soup, and season with salt and fine pepper. Afterwards put into the saucepan four ounces of rice—or more if required—and boil them together for an hour and a half.

Au Riz Faubonne à l'Eau (*Rice Soup*).—Take four carrots, four turnips, six leeks, six onions, and a little root of parsley. Cut them up into pieces of the shape and size of dice, and fry them in butter. When well cooked, add the requisite quantity of water for the soup. Now put in with them four ounces of rice—more if required—boil them all for one hour and a half, until the rice and the other ingredients are sufficiently cooked, and then add salt and coarse pepper for seasoning. Before sending up this dish to table care must be taken that there is not too much butter in the soup.

Riz au Lait (*Rice Milk*).—Carefully wash four ounces of rice, and put it in a saucepan of boiling milk. The rice is now to be boiled for an hour and a half over a slow fire. Care must be taken that there is always sufficient milk in the saucepan for the rice to swell in easily without forming a paste. When the rice is ready for serving up, sweeten it with a sufficient quantity of sugar and add five or six grains of salt. Care must be taken not to entirely cover the mouth of the vessel.

Riz au Lait d'Amandes (*Rice with Milk of Almonds*).—Detach the skin from the almonds by putting them in a saucepan with water, which you warm until it almost boils. When the skin has come off, put them in fresh water. Then bruise the almonds in a mortar, and when well beaten up, put them in a saucepan and soften them with about a pint of milk. Then place them in a fine cloth, and compress them until all the milk has been forced out. Pour this milk into the potage at the time of serving it up. It must be sent to table very warm, and made sweet with good sugar and a little honey. It will be found in preparing the milk of almonds that four ounces of sweet and six bitter ones are sufficient for three pints and a half of milk.

Riz à la Créole (*Rice served in the Creole Manner*).—Take two good fowls, which must be cut up as if for a *fricassée*, cook them in a pan with butter, and season with two cloves, ten peppercorns, crushed or powdered, and a little saffron, and then pour over the fowls some good stock; then take thirty onions, chop them up small and fry them in butter, and then drain them. Put them in the saucepan with the fowls, and boil the whole over a good fire. Eight ounces of rice are now to be washed in water six times, to remove every particle of dirt, and then boiled in water until it swells. When sent to table the fowls and the rice are to be served separately.

Riz à l'Italienne (*Rice dressed in the Italian Manner*).—To prepare this dish eight ounces of rice must be first washed very carefully. Then four ounces of bacon are to be cut in pieces, and also a Milan cabbage, which must be likewise chopped up. The cabbage and bacon are to be cooked together at a gentle heat and seasoned with some parsley chopped up, garlic, pepper, salt, and a little fennel. After the cabbage has been cooking for three-quarters of an hour, add the rice, and allow the whole to cook for a quarter of an hour. It is to be served at table with Parmesan cheese.

Another Way of preparing the Same.—Wash eight ounces of rice and cook them for a quarter of an hour with a spoonful of stock and four ounces of butter. Now prepare a mixture of the yolks of four eggs, to which two ounces of Parmesan cheese and a little coarse pepper have been added, mix them all with the rice, and serve in the manner directed for potage.

Riz à la Turque (*Rice dressed in the Turkish Manner*).—Take eight ounces of rice, and wash them many times in water, steep them in some hot water, drain them, and put into a saucepan. Then swell the rice with some good gravy soup, taking care not to add too much. Divide the rice into two portions, taking one half and beating it with some ground saffron, four peppercorns in powder, a piece of butter, some beef marrow, and a little jelly prepared from a fowl. Mix them all together, and serve up in a soup-tureen or deep dish with the gravy soup by itself.

FURS.—I.

VARIETIES, ETC.

THE advantages that have been, and still are, derived from the branch of commerce connected with the warm covering of all kinds of animals are great and numerous; and mutual are the benefits that have been produced for the wearer, and more especially for the inhabitants of the uncivilised nations from whence furs are chiefly imported. The visits of educated and enterprising men, in search of animals of whose covering they have been led to make a trade, have resulted in geographical discoveries most beneficial to the countries they have been led to explore; the inhabitants having been, in many cases, thus rescued from a state of barbarism to civilisation and Christianity, and a great portion of North America having by this means been discovered.

The use of fur appears to have been introduced into Europe by the northern invaders of the Roman empire; and as early as the sixth century sable was brought from the arctic regions to Rome, but the cost was far too great to allow of their use being general for several years after. In A.D. 1252 the tents of the Khan of Tartary were found lined with the skins of sable and ermine, by Marco Polo; and in 1337 furs appear to have been rather generally worn in England, but chiefly by the wealthy. In the seventeenth century, the Hudson's Bay Company having received a charter of incorporation from Charles II. (1670), the entire trade in furs was transacted by its members, thus rendering the purchase of furs to be made at a cheaper rate. In 1682 was formed an opposition company, which led to disputes which damaged the general fur trade so materially, that the two companies "the Hudson's Bay Company," and "the North-West Company"—in 1821 united under the original name, having then to compete with several other traders of the United States, Russia, Norway, &c.; but the gradual reduction in the price of furs has been mostly brought about by the supply from the Hudson's Bay Territories; hence London is the largest fur-market in the world, the company having above 140 establishments. The stations of this company extend from the coasts of Labrador to the Pacific Ocean, and from the northern boundaries of Canada to the shores of the Arctic Ocean. The Territory has recently been transferred to the Government.

As most of our readers can appreciate the value of fur as a comfort, a health-preserver, and a luxury, it may be interesting to know that much above 5,000,000 skins of animals, to be sold by furriers, are annually imported into Great Britain; and a knowledge of the qualities and characters of these furs can but be useful, especially to ladies, when purchasing warm cloaks and winter wraps, so that they may understand the value, durability, quality, and superiority of the furs they select.

The animals which are thickly covered with fine hair, and whose skins are very beautiful and valuable as articles of clothing, naturally inhabit chiefly the northern and arctic regions of our globe.

Of the weasel tribe the *Sable* (*Mustela zibellina*) is the most valuable, useful, rich, and beautiful skin brought to our country. That brought from Russia is considered the best and finest. Above 25,000 skins are annually collected in Russia, but a small number only is imported into England. The fur is brown, with grey spots on the head; and the darker varieties are the most highly valued, a single skin being frequently sold for £9, the average value being £2 or £3.

There are several kinds of sable, but it is considered uncertain by naturalists whether they are distinct species, or varieties produced by food and climate; the Russian sable being easily distinguished, from the length and fulness as well as the darker colour of the fur. Even to the wealthy the use of this beautiful fur is limited, on account of its scarcity; and a law in the reign of Henry VIII., which was made to regulate the expenses of the different classes, and thereby distinguish them, enacted that the nobility in rank above a viscount should alone wear sable.

The Hudson's Bay Sable (*Mustela Canadensis*) is next in repute, and above 120,000 are annually imported into this country. The colour of this skin is light brown, and it is frequently dyed a darker colour, rendering it little inferior to the Russian fur.

The Baum, or Pine Marten (*Mustela abietum*), is a native of Europe, inhabiting forests, and preying on birds and smaller animals. The colour of the skin is brown, but the throat part is yellow. When dyed they have as good an appearance as the best sable.

The Stone Marten (*Mustela saxorum*) is found in stony, mountainous districts, is a visitor of farmyards, and very generally distributed through most European countries. The under fur is a bluish white, with the top hairs of a dark brown; the throat pure white. The French excel in dyeing this fur, hence its name of French sable, by which it is usually known. It is also dyed in England, and used for a variety of purposes to which furs are applied, on account of the excellent qualities of the skin.

The Fisher Marten is larger, and the fur fuller and longer; the tail long, round, and full, gradually tapering to a point, and quite black. Eleven thousand are annually brought from North America to this country.

The Minx (*Mustela vison*).—This animal very much resembles the sable in colour, but the hair is much shorter and more glossy. The fur is very durable and useful, and is extensively exported to the Continent; about 245,000 skins being in some seasons imported by the Hudson's Bay Company and North American merchants into this country.

The Ermine (*Mustela erminea*).—The animal from which the beautiful fur called ermine is procured is almost exclusively a native of the cold regions of Europe and Asia. It very much resembles in form our common weasel or stoat, but the colour is of the purest white, with the exception of the tip of the tail, which is black. The best fur is obtained from old animals, and they are taken by snares or traps, sometimes being shot with blunt arrows to prevent the skin being stained. This animal during winter becomes as white as snow, in summer dingy brown, and is about sixteen inches long. The tails are laid on the white skin when made into articles of clothing, giving the peculiarly beautiful effect of ermine. The spotted ermine, called minever, is made by fixing the black tips of the tails at intervals in the fur. In the reign of Edward III. ermine was only worn by royalty, and the practice of wearing ermine is still followed on state occasions, although now very generally worn as the prettiest of all furs, especially for young ladies.

The Fitch, or Polecat (*Mustela putorius*), is found throughout Europe, and very generally in Great Britain. The top hair is black, the lower or ground fur being of deep yellow; but it is not much admired at the present time, excepting in America. It wears very well, but it has rather a strong smell, which it does not seem possible to extract.

The North American Skunk (*Mephitis Americana*) is something like the polecat, and its skins are imported by the Hudson's Bay Company. The fur is soft and black, with two white stripes running from the head to the tail, which is short and bushy. The skins are not commonly worn in this country, and the small numbers imported are generally sent to the continent of Europe.

The Kolinski (*Mustela Siberica*).—The fur of this animal is called the Tartar sable, and is of a bright yellow colour. It is sometimes used for trimmings in its natural colour, but is generally dyed brown to imitate sable, to which it then bears a great resemblance, as it is

of a uniform colour. Of the tail are made the pencils used by artists under the name of sable pencils.

The Musquash, or Musk Rat (*Fiber Zibethicus*), like the beaver, frequents swamps and rivers, and builds its habitation with mud; it is found in great numbers in North America; and to this country are brought annually above 1,000,000 of its skins. The fur greatly resembles that of the beaver, and is used by hat manufacturers as well as by furriers, for cheap muffs and tippets, &c. The animal bears a strong odour of musk, but it is not the animal of Thibet from whence the perfume is derived.

The Nutria, or Coypus (*Myopotamus coipus*).—The nutria also frequents rivers and other waters, where it swims and burrows; but it is smaller than the beaver, yet considerably larger than the musquash, although in its general appearance and habits it resembles both of these animals. Its skin was once largely used by hatters, and is now dressed and dyed as a substitute for seal.

RACOON.

The Hamster (*Cricetus vulgaris*).—This fur is brought in large quantities from Central Germany; it is short, poor, and coarse, and chiefly used for cloak linings by the dress, the coarse hairs being removed and the surface very evenly cut, which mode of preparation renders it almost equal to the skin of the costly South Sea otter, which it excels in lightness, durability, and cheapness; and it is probably often sold for sealskin, as when well prepared the skin of the beaver assumes a very beautiful appearance. The white wool from the under part of the beaver is made into children's hats, and formerly into ladies' bonnets. The skins are imported by the Hudson's Bay Company, though the animal is considered to have been once an inhabitant of the British Isles.

The Otter (*Lutra vulgaris, Lutra Canadensis*).—This skin is not so commonly used in England as in Russia and China. It comes chiefly from America, but from this country a supply is also obtained, the fur of the animals of both countries being very similar. That of the otter from the East Indies is very short.

The Sea Otter (*Enhydra marina*).—The fur of this animal is very thick, soft, and woolly, and much valued by the Russians and Chinese; but the animal is scarce, and therefore this skin is not in common use.

The Seal (*Phoca*).—There are many varieties of this

MARTEN. WEASEL.

Greeks. The colour of the back is a yellow-brown, the belly black with a few light spots; and no doubt this skin may be recognised as made into cheap muffs and collars; the hair being short, glossy, and spotted with white. It is a pretty fur when made up in its brown and black stripes, to be worn as a cape, or for carriage rugs.

The Perwitsky comes from the south-eastern territories of Asiatic Russia; it is beautifully marked like tortoise-shell, but the fur is short, and chiefly used as cloak linings by the Russians.

The Beaver (*Castor Americanus*).—The skin of this animal has been in less demand by hatters since silk hats have been worn; but the fur is still used for articles of animal, but the seals of the South Seas and of the north-west coast of America are those generally used for furs. The hair of the seal is very coarse, but it covers a beautifully fine silky fur, and, when properly prepared, is made into very expensive articles of ladies' dress—at the present time into muffs, jackets, and collars. It is seldom now used in its natural state or colour, the roots of the hairs that are deeply seated in the substance of the thick pelt being either cut out or extracted by a process of fermentation, produced by allowing the skins to remain together, which causes the hairs to fall out from the down or pelt, leaving to the skin when dyed dark brown or black the appearance of rich velvet.

The Fox (*Vulpes fulvus*).—Many varieties of fox-skins are brought to this country, but the black fox and silver fox, from the arctic regions, are the most valuable. The cross and red foxes are used in Russia for cloak linings, the blue and white foxes in this and other countries for ladies' dress.

BEAVERS.

The Wolverine (*Gulo luscus*) is only found in Norway, Sweden, and North America. The colour of the fur of this animal passes in the winter from dark brown to black, and is chiefly used in Germany for cloak linings.

The Bear (*Ursus*).—There are several kinds of bear-skins used by furriers. The skin of the black bear of North America (*Ursus Americanus*) is used in this country for military purposes, rugs, and carriage hammer-cloths, and on the Continent for coachmen's capes and wrappers, the servants there being well protected with fur. In Russia it is used for sledge coverings. There the skin of the young animal is greatly prized for trimmings, coat linings, and for many other articles of costume.

SEA OTTER.

The Grizzly Bear (*Ursus ferox*) gives its skin for similar uses.

The White Polar Bear is not common, but the skin is frequently made into rugs, which are bordered with those of the black bear.

The Brown or Isabella Bear-skin was at one time very valuable, and much used as a fashionable fur in this country; but it is now little worn.

The Hare.—Felt hats are made of the wool or under fur of the European grey hare (*Lepus timidus*), and the skin is now extensively used for chest-protectors.

The White Hare of Russia and the Polar Regions (*Lepus glacialis*).—This fur is made into cloak linings, and, when dyed, looks extremely rich, but it is not strong.

The Rabbit (*Lepus cuniculus*).—The skin of this timid little creature is made use of for a great variety of purposes. It is dressed and dyed in imitation of expensive furs, the wool is made into a fine delicate cloth, and the skins are still used by hatters. The skins of our silver-grey rabbits are much admired in China and Russia, and the Hudson's Bay rabbit's skin is particularly fine and beautiful in length of hair and texture, but it is rather too fragile to be very much used as an article of dress.

The White Polish Rabbit gives the skin most generally used for imitation of ermine, and is used for cloak linings, jackets, &c., and, being extremely useful and cheap, it is imported in large quantities.

The Squirrel (*Sciurus vulgaris*).—The skin of this little animal is brought chiefly from Siberia and the north of Europe. Russia supplies a very large number; and, indeed, of all our furs, this seems to be the most commonly used, as it is very light, warm, and durable; and our imitation sables are the lighter squirrel-skins dyed.

The Siberian Squirrel varies in colour from a pearl to a dark blue-grey. The under parts are white, forming excellent cloak linings and jackets.

The Chinchilla (*Chinchilla lanigera*).—Of this fur there are two varieties. One is brought from Lima, the other from Buenos Ayres and Arica. The furs from Lima are short, and inferior to those from Buenos Ayres; and from Arica we have the darkest and best coloured. The colour, to be good, should be silver-grey

shading to a dark grey, and black. The animal is in appearance between a squirrel and a rabbit, having the agility of the former with the habits of the latter. The fur is so very soft and beautiful that it is only adapted for ladies' wear, and it is greatly admired in France, Germany, and Russia, and at the present time very extensively used in England.

The Racoon (*Procyon lotor*).—This animal produces a strong useful fur, which is chiefly made use of in Germany and Russia for lining coats; but it is imported first into this country in rather large quantities.

The Common Badger (*Meles vulgaris*).—The skin of this animal is not much used, on account of the wiry nature of the hair; but that of the North American badger has a soft, fine fur, which renders it serviceable for the same purposes as most of the large furs.

The Cat (*Felis domestica*).—In Holland the cat is bred for its fur. The skin of the wild cat (*Felis catus*), found in Hungary, is brownish grey spotted with black, and is so extremely durable and soft that it is used for cloak linings, and wrappers for open carriages, and railway rugs.

The Canada Lynx (*Felis Canadensis*) *and Lynx Cat* (*Felis rufa*).—Of these animals the fur is very beautifully soft and long, of a greyish colour, and sometimes in the Norway lynx spotted with brown; the belly white, silky, and often spotted with black. It is dyed sometimes black, but is not at the present time much used, although we occasionally see very pretty muffs made from the best kind of this fur.

The Grebe Muffs and Tippets now so much worn are made of the feathers of an aquatic bird inhabiting the northern regions, and are brought in large quantities from the American fur countries.

Sheep-skins are used by furriers for linings of cloaks, military purposes, mats, &c.

The Astrakhan Goat-skin, from Russia, is also much used for muffs and trimmings, and is usually dyed black. The wool of the young animal is the finest.

DEATH IN THE HOUSEHOLD.

III.

As the incurring of only a moderate expense in interments is often an object to the survivors, especially where they are left in straitened circumstances, we will now give information about the expense of burial in the various metropolitan cemeteries.

Of course, interment in a brick vault is the most costly, and is only suited for those in comfortable circumstances. The price of such a vault at Highgate or Nunhead Cemeteries is £49 7s. 6d.; at Norwood, £41 7s. 6d.; Kensal Green, £49 7s. 6d.; Brompton, £40 7s. 6d.; Leyton or Stratford, £40 10s.; Abney Park, £51 7s.; Great Northern, £35 17s. 6d.; Victoria Park, £40 13s. 6d.; and Bow, £44 3s. If the vault, however, is only made large enough to contain six coffins the charges are: Highgate or Nunhead, £39 2s. 6d.; Norwood, £33 2s. 6d.; Kensal Green, £39 2s. 6d.; Brompton, £28 6s. 6d.; Leyton or Stratford, £29 10s.; Abney Park, £40 7s.; Great Northern, £27 14s. 6d.; Victoria Park, £31 16s. 6d.; and Bow, £34 19s.

The cost of burial in the public vault at Highgate or Nunhead, is £8 8s.; at Norwood, £7 7s.; Kensal Green, £8 8s.; Brompton, £6 6s.; Victoria Park, £6 8s. 6d.; and at Bow, £7 7s.

For interment in the catacombs the lowest charges are, for Highgate or Nunhead, £17 10s.; Norwood, £19 17s. 6d.; Kensal Green, £19 5s.; Brompton, £12 12s.; Leyton or Stratford, £15 15s.; Abney Park, £14 17s.; Great Northern, £10 15s.; and Bow, £14 14s.

It must be remembered that additional expense attends interments in vaults and catacombs, owing to the regulations, which require lead coffins to be used.

The charges for a private brick grave, seven feet in length, in a first-class portion of the ground, are—at Highgate or Nunhead, £8 10s. 6d.; Norwood, £8 10s. 6d.; Kensal Green, £9 11s. 6d.; Leyton or Stratford, £10 10s.; Great Northern, £5 18s.; Victoria Park, £5 15s. 6d.; and Bow, £8 1s.

For a second-class grave of the same kind the prices are:—Highgate or Nunhead, £5 7s. 6d.; Norwood, £6 8s. 6d.; Kensal Green, £8 10s. 6d.; Brompton, £5 7s. 6d.; Leyton or Stratford, £8 8s.; Abney Park, £5 18s. 6d.; Great Northern, £4 15s.; Victoria Park, £4 14s. 6d.; and Bow, £5 19s.

For a third-class grave the charges are:—Norwood, £5 7s. 6d.; Kensal Green, £5 7s. 6d.; Leyton or Stratford, £5 5s.; Abney Park, £4 17s. 6d.; Great Northern, £2 4s. 6d.; Victoria Park, £4 1s.; and Bow, £4 18s.

For single interments the cost is considerably less, the price for an adult in first-class ground at Leyton or Stratford being £3 3s.; at the Great Northern, £1 15s.; and at Bow, £1 15s. For a child the costs are:—Leyton or Stratford, £2 2s.; Great Northern, £1 3s. 4d.; and Bow, £1, and £1 5s.

Adult single interments in third-class ground also vary considerably. The prices at Highgate or Nunhead are £2 2s.; Norwood, £2 2s.; Kensal Green, £2 2s.; Brompton, £1 16s.; Leyton or Stratford, £1 1s.; Abney Park, £2; Great Northern, 11s.; Victoria Park, £1 2s. 6d.; and Bow, £1 10s.; while for a child the charges are reduced to:—Highgate or Nunhead, £1 10s.; Norwood, £1 10s.; Kensal Green, £1 12s.; Brompton, £1 6s.; Leyton or Stratford, 15s.; Abney Park, £1 15s.; Great Northern, 7s. 4d.; Victoria Park, 9s. 6d., and 12s. 6d.; Bow, 15s.

In the unconsecrated portion of the ground at the Great Northern the charges are less than in the consecrated portion, being, for private graves, in first-class ground, £5 10s.; in second-class ground, £4 2s. 6d.; and in third-class, £2 0s. 6d. Single interments in first-class ground are, adult's, £1 12s. 6d.; child's, £1 1s. 8d.; second-class, 18s. for adults, 12s. for children; while an interment in third-class ground is 10s. for an adult and 6s. 8d. for a child.

At all the cemeteries a certain time is appointed for general interments. The general time is three o'clock in the afternoon for the Highgate, Norwood, Kensal Green, and Brompton Cemeteries, but interments may take place at other hours on payment of an extra fee of seven shillings and sixpence. Leyton and Stratford are open for burials from ten to four, and the fee for interring at other hours is five shillings. Abney Park is open from two, the extra fee for burial at other periods of the day being seven shillings and sixpence. The Great Northern Cemetery's hours for interment are from ten until four o'clock, and the time appointed for the purpose at the Bow Cemetery is after one.

Prospectuses of the metropolitan cemeteries may be obtained by writing for them to their respective offices. The office of the Highgate and Nunhead is situated at 29, New Bridge Street; Norwood, 70, King William Street; Kensal Green, 95, Great Russell Street; Brompton, 12, Haymarket; Leyton and Stratford, at the cemetery; Abney Park, 23, Moorgate Street; Great Northern, 10, Vernon Place, Bloomsbury; Victoria Park and Bow, at the cemeteries.

It is advisable also to communicate, as soon as possible, with such of the relatives and friends of the deceased as may be wished to attend the funeral. This may be done either by some friend calling on them, or by letter. If the latter course is adopted, forms like the following, which only require the name, place, and date to be filled in, are very convenient. They are to be had ready

printed in a black-letter type, on black-edged mourning paper :—

The favour of your company is requested on —— next, the —— of ——, to attend the funeral of the late ——. The mourners will assemble at —— late residence, ——, at —— o'clock, to proceed to ——.

Sometimes the duty of inviting the mourners devolves upon the undertaker. In this case the following form is usually employed. The object of requesting an early answer is for him to learn what number of mourning coaches will be required :—

The favour of —— company is requested to attend the funeral of the late ——, on —— next, the ——. The mourners will assemble at ——, and then proceed to ——. An early answer to ——, undertaker, will oblige ——.

In cases where the death has occurred in a wealthy family, and where, consequently, no expense is spared on the funeral, mourning coaches are sent to the houses of all who are to attend the funeral, to convey them to the residence of the deceased, where the mourners are to assemble. Under these circumstances forms of this kind are sent out :—

The friends of the late ——, of ——, request the favour of —— company on —— next, the ——, to unite with them in paying the last tribute of respect to the deceased, ——, and for which purpose a mourning coach will call for —— at —— to convey —— to —— late residence, ——. An early answer to ——, undertaker, will oblige ——.

It is also customary with some families to return thanks for the kind inquiries that may have been made during the illness of the deceased. This may be very conveniently done by means of the following printed letter:—

... .

return thanks for

... .

kind inquiries.

The various kinds of mourning stationery are sold by all retail stationers, and note-paper, cards, and envelopes can readily be obtained in all depths of border. The envelopes are generally adhesive, with an embossed cameo device on the flap, but it is not unusual to impress a seal of black wax in addition.

ODDS AND ENDS.

Dutch Method of Salting Herrings.—As soon as the herrings are out of the sea, the Dutch barreller kills them, draws them, leaves the roe, or eggs, washes them in fresh water, and *liquors* them. Then he puts them into a tub of strong brine, made with fresh water and sea-salt, in which they remain twelve or fifteen hours. When taken out of the liquor, he lets them drain, then lays them in beds in the keg, or barrel, the bottom of which is covered with a layer of salt. When the keg is full, he puts on a layer of salt, and stops down the barrel closely, in order to preserve the brine, and prevent their taking vent, without which precaution the herrings could not be preserved. As soon as they are landed he proceeds to the second salting, which is done as follows:—He knocks out the heads of the barrels, takes out the herrings, which are washed and cleaned in their own brine, after which they are re-barrelled in new casks, the heads laid outside, and the tails in the middle, pressing them down, so that the barrel holds nearly one-third more than it did at first. The fisherman Benkels, in the fourteenth century, invented the art of salting and packing herrings ; and after introducing it into his own country, Flanders, he went into Finland and established it there, from whence it spread to all the Baltic Provinces. Benkels died in Flanders, but the benefits which he conferred upon mankind by his art have not been forgotten by crowned heads, as is too often the case. Charles V. once visited his tomb. Peter the Great gave a pension to one of his descendants. And in 1856, Alexander II., Emperor of Russia, went to the little town of Bergo, where he laid, with great ceremony, the first stone of a monument to the fisherman Benkels—a real benefactor to his race.

Westphalia Pickle.—To one gallon of soft water put two ounces of bay-salt, two pounds of common salt, two ounces of saltpetre, and a handful of bay-leaves, chopped small ; boil and skim it, and pour it over the meat.

Pickle for Tongues.—Water and porter, each one quart; saltpetre, four ounces; bay-salt, two pounds; common salt, two pounds. Simmer together and skim, and pour it hot over the tongues, which have been rubbed four days with sugar, salt, and saltpetre. The tongues having lain in the pickle for eight days, will be fit for use.

Hamburg Pickle.—Water that has been boiled, one gallon ; common salt, one pound ; coarse sugar, one pound and a half; saltpetre, two ounces; vinegar, half a pint. Simmer the above, and pour it over the meat, which will be ready for smoking in three weeks.

Mutton Hams.—The mutton for the purpose should be very fat. Mix two ounces of raw sugar with one ounce of common salt and half a tablespoonful of saltpetre. Rub the mutton ham with this mixture, and place in a pan ; beat it, and turn it twice a day for three successive days, at each time throwing away the brine which exudes from the meat ; then wipe it, and rub it again with the mixture as before. On the morrow beat and turn and wipe it as before, and repeat this for ten days, taking care on leaving it after each salting to have that side uppermost which was undermost before. Let it then be smoked ten days.

To restore Fading Flowers.—Should the flowers be much withered, and beyond the efficacy of cold water readily to restore, plunge their stalks about an inch deep into scalding water, and by the time the water becomes cold the flowers will be restored and fresh. Cut off the ends of the stalks which have been softened by the scalding water, and restore the flowers to the vases in cold water.

To render Ladies' Dresses Incombustible.—Half the weight of whitening mixed with the starch will render lace, net, muslin, gauze, or any other light stuff, perfectly uninflammable. As white dresses are much worn at evening parties, where fires are often kept in the grates, and numerous ladies have been burnt to death by means of their dresses catching light whilst dancing, it is hoped this useful receipt will not be forgotten by any lady in the habit of attending balls and parties. This receipt is equally applicable to the lace flounces and other trimmings with which silk dresses are usually adorned.

Other Receipts.—Dissolve half an ounce of alum or sal ammoniac in water, and mix it with the water in which a dress is to be rinsed. By this means the dress will be rendered incombustible, or at any rate so slightly inflammable that it would not take light readily; but should it happen to do so it would be consumed without flame. Any linen or cotton fabric prepared with a solution of sal ammoniac or phosphate of ammonia may be brought in contact with ignited bodies without danger. Stuffs so prepared will carbonise, but not inflame. Alum or sea-salt in solution may be employed for the same purpose.

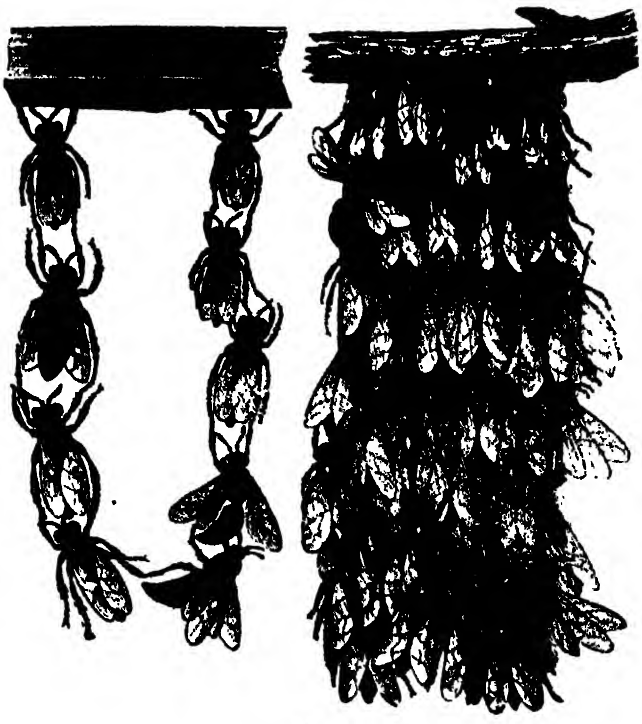
To distinguish Cotton in Wool.—The portion of the material may be boiled for a short time in a saturated solution of caustic soda, when all the wool that may be present will dissolve, while the cotton is hardly injured. If the number of threads in the portion of tissue employed in the experiment has been previously counted, it may thus be ascertained what proportion the threads of wool bear to those of cotton.

BEES AND BEE-KEEPING.—I.

THE subject of bee-keeping was thought worthy the study and attention of many learned men among the ancients—Greeks as well as Romans. Pliny tells us that Aristomachus made them his study for more than fifty years. Philiscus spent much of his time in the same manner; Aristotle wrote on the subject; and Virgil refers to this insect in some of his verses.

The order to which this insect belongs is that of *Hymenoptera;* and the family that of the *Apidæ* (from *apis*, the Latin for bee). This order includes all insects possessing four membranous, gauze-like wings, of unequal sizes. The species to be treated of is known as the *Apis mellifica*, or honey-making bee, of Linnæus, of which there are two species to be found in Europe—the difference consisting in the deeper colour of rings that encircle the body of those inhabiting the south; and three classes, composed of the queen bee, the drones, and the workers, inhabit the hive; but on the queen most wonderfully rests the sole government of the community.

FEMALE, OR QUEEN. WORKING BEE. MALE, OR DRONE.



CLUSTERS OF BEES.

The management of these interesting insects may be made, by those persons who have the good fortune to live in the country, a very nice household occupation, and to many a source of pecuniary profit; therefore, no person who has a garden should be without bees. In making this assertion it must be borne in mind that the quantity of honey made by bees depends on the kind of hive used for them to work in. Straw hives are recommended at the South Kensington Museum; also by Messrs. Neighbour, of Holborn; as well as by the most experienced writers on the management of bees. Glass hives are used by ladies, or those who simply keep bees for amusement or scientific experiments. These hives are made of stout glass, and admit of only one bell-glass for deprivation, and are therefore less profitable than others.

The first outlay for bee-keeping is not great; while the returns of each honey harvest are often very considerable, and clear gain, and when conducted on a proper principle will form no mean item in the domestic economy of the extensive agriculturist; while to others it may be made a little income, since from a single hive £10 or £15 a year may be easily gained.

We will not enter into the history of honey or honey-bees, which have both been well known from the earliest times; but leaving their description to the naturalist we will proceed to give directions for keeping bees, and offer advice as to the best way of managing them.

Form of the Hive.—A home for the bees must be first provided, and a good and cheap one may be made by taking a large straw hive (see illustration on next page), and cutting it across at about one-third of its length from the upper end. Into this end must be fitted a round piece of wood, about an inch in thickness, having in its centre a hole about an inch and a half in diameter, fitted with a cork or bung. Another hive of ordinary size must be placed over the cut one. This is called capping. When the bees appear about to swarm, the cork must be removed, and the cap placed over the board. This acts as a bell-glass, and the honey collected in it will be as good as that taken from the most costly set of boxes. A coat of Roman cement, laid over the exterior surface of the hive, will render it strong, and protect the bees from heat and cold. Seventy-two pounds of fine pure honey were taken in one season from a hive of this construction.

Glass hives are objectionable, as bees like to work in the dark free from observation. Their natural abode is in a hollow beneath a bank or foot of a tree, or some secluded dark situation; therefore, it is advisable to allow them to live as close to nature as possible, and the straw hive certainly approaches nearer to their taste than any other.

The old straw hive has been of late years replaced by many very useful and more humane contrivances. What could be more cruel and unprofitable than the practice of killing the bees in order to obtain possession of their honey, and thus destroying, in mere wantonness and ignorance, the lives of multitudes of creatures, who, if permitted to live, would have been ready to work again in the following spring? Besides, by the old process the brimstone which was used in autumn for suffocating the poor insects, destroyed the flavour of the honey, and filled it with the dead bodies of its industrious, clever little producers.

Therefore, the best and most convenient form of hive is that which allows of the honey being taken when desired, without injuring the bees; of obtaining it in its purest form; and of affording means for increasing the accommodation of the bees when necessary, to prevent them leaving the hive, or swarming, as it is called, from want of accommodation.

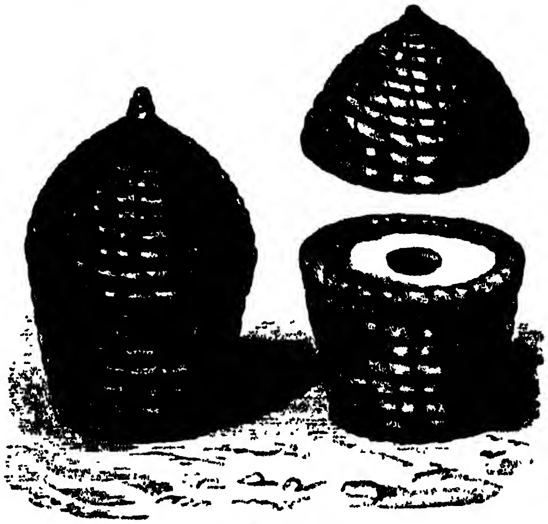
Hives to meet all these necessities are now constructed in great varieties of form and material, some of which can be safely managed by a child; and although it must ever

be borne in mind that a hive of very simple construction is quite as serviceable as another far more elaborately contrived, still it must be admitted that an increased attention to the comfort and happiness of the little industrious insects is only a duty on the part of those who keep them; and the improved straw hive, previously described, is decidedly the prettiest and most picturesque, and is very inexpensive and simple; but the choice of a hive must be left to those who intend to keep bees.

Position of the Hive.—The proper situation of a hive is of the greatest importance. The early morning sun is not beneficial to bees, for it induces them to go out too early, and the cold spring mornings are likely to cause the death of many; besides, the early light induces them to commence their work too soon, and they would be tired before the day's toil was over; in a general way, bees do more work between eight and twelve o'clock than any other time. Whatever be the position chosen for the hive, the sun must shine upon it at one time in the day for a short period, and a south-east aspect is recommended as the best.

The hives should be placed on a stand at some little distance from the ground, over a dry, sandy soil, care being taken to make it slope frontways to throw off the rain; the spot chosen must not be near the droppings from houses, sheds, hedges, or trees, but sheltered by a wall on the east; and it is well to place the stand in a sort of small, well-made, open shed, with a few shrubs planted about it; high trees are to be avoided, as the bees, in returning heavily-laden to the hive, are apt to be killed by being blown among the branches, or are likely to be knocked down to the ground.

If trees are near the hive they should be low, and at the sides of the hive, leaving the entrance free; and low trees would be found convenient in the event of the bees leaving the hive, as, if they settle on low trees, they are the more easily caught.



STRAW HIVES.

Danger from Animals and Insects.—Bees must be carefully guarded from many dangers, to which they are subject from the invasions of insects and small animals. Caterpillars destroy the combs if allowed to enter the hive; but if the stands are placed on a single foot, or the feet so placed under the foot-board as to leave a projecting ledge, caterpillars and some other vermin will be prevented reaching the hive. Moths are very troublesome and destructive also, and the evening is the time of the greatest danger from their visits; therefore the entrance should be partially shut at the close of day. A trap for catching moths may be made of a bottle or other vessel, with a long narrow neck, increasing gradually to a wide mouth. If the bottle is placed under the hive with a light in the neck, it will destroy numbers, as moths, it is well known, are attracted by light. But the stock of bees, if sufficiently strong, will prove the greatest protection, as they are willing and able to destroy these intruders; therefore attention to the condition of the hive, as before recommended, prevents many of the evils to be guarded against or rectified. If the hive attacked by moths be weak, it must be united to the bees in another hive; and periodical fumigation, or cutting away such combs as contain grubs, must also in some cases be resorted to, but care is the best preventive.

As the cold weather approaches, and the bees become sluggish, the field-mouse becomes an enemy to the hive, which he has not dared to attack before. Commencing with the lower combs he ascends to the top of the hive, clearing away all the honey, and, perhaps, even leads other bees to come in and help him in his plunder, attracted by the smell of the honey he has scattered and wasted on the board; and the surviving bees will then in disgust leave the hive. By having the straw hives coated with Roman cement, the mice will be prevented nestling in the straw-work, and thence speedily making their way into the interior; and by narrowing the entrance they may be kept out; also by resting the hive on the stand in the manner described as a preservative from caterpillars. Snails and slugs enter the hive only accidentally, they do not care for honey; but they occasion great confusion and alarm in the hive, although they are soon stung to death, and covered by the intelligent inmates with "propolis" (a glutinous substance which the bees use for filling up chinks or fixing substances), to prevent the ill effects of putrefaction. Toads and frogs will kill bees, but they seldom have an opportunity; and fowls will not only kill and eat bees, but annoy and disturb the hive; therefore, as a garden is pretty certain to be secure from the visits of the poultry, it will be a safe place for bees. In countries where lizards abound the bees are destroyed by them, but in England there is little fear of mischief from their visits. Wood-lice may be produced by the stand being made of old wood, and the hive may be annoyed by them through standing too near an old hedge; be careful, therefore, to have the stand made of new wood, and strew soot on the ground as a protection against the attacks of other insects. Ants' nests should be carefully destroyed, and glass rests for the feet of the stand of the hive are good preventives to the intrusions of the bees' enemies generally.

If bees are found to be infested with a small red insect, which sometimes adheres to and feeds upon their bodies, a fumigation of Morocco tobacco will kill the lice without injuring the bees. The webs of spiders should be carefully cleared away whenever they appear near the hives. Wasps and hornets are very obnoxious to bees, and their nests must always be dug up and destroyed. The perforated zinc door excludes wasps, but it must not be kept closed. Sparrows, swallows, and a little bird called the house-lark, are enemies to hives; from these the bees must be guarded in the best way that they can be without killing the birds, so useful in other ways. Bees, it has been already shown, prove themselves dangerous to one another, by strong hives attacking weak ones, therefore union is the remedy; avoid also placing hives too near each other, and a weak stock near a strong one. With proper care and attention all these little difficulties may be easily surmounted; but by neglecting proper precautions, and allowing the enemy to be unmolested, the amount of mischief that will be rapidly effected will be as great as it will be surprising; but it is a well-known fact that there is little success without patience, trouble, and perseverance.

DOMESTIC MEDICINE.—XLVI.

PARALYSIS.

THE word *paralysis* is derived from the Greek word παραλυσις, *a loosening aside*. Palsy is the English of it, and signifies a loss or diminution of nervous power affecting one side, or part of one side, or both sides. The subject admits not only of popular explanation, but of some hints of a preventive kind, which, if taken, may prolong many lives, and guard against paralysis.

Symptoms.—Every case of loss of power in a limb or other part is not, strictly speaking, a case of paralysis. Muscles, after being the seat of severe pain or aching, are often weak and powerless, as in some kinds of rheumatic pains; but the pain being removed, the muscles gradually recover themselves, and act again as before. True paralysis, or loss of the power of motion in a part or on one side, often occurs without any pain having been felt. The best way of helping a non-medical reader to understand paralysis is to describe a typical case, and the different kinds of paralysis in the light of that. Some forms of paralysis are strictly local; some are in their nature more serious and more extensive than others; some are essentially temporary; others are either very slow of improvement or practically incurable.

To take, then, a typical case of paralysis: A man finds one day that he cannot move his right leg so freely as usual; he drags it, instead of lifting it up like the other. He cannot use his hand in the usual way to write or cut his meat. He cannot raise it to his mouth as usual. Perhaps his speech is a little thick, or his memory of words is imperfect, or he may not be able to speak at all. His face may be a little drawn to one side—the side opposite to that paralysed, because the muscles of the healthy side of the face, not being counteracted by the muscles on the other side, draw the face over. The tongue is pushed by the muscles of the healthy side towards the paralysed side. But neither the face nor the tongue may be affected. Such are the essential symptoms of a palsy. They may come on without any premonitory symptoms, or they may have some previous symptoms, such as headache, giddiness, or undefinable pains, or "pins and needles" feeling, or numbness in the side which becomes paralysed. The palsy may be unaccompanied with other symptoms, or it may be accompanied by confusion of ideas, or by a great depression and tendency to cry. The consciousness is not lost in simple paralysis. When loss of consciousness supervenes on paralysis, the case becomes one of apoplexy. If the paralysis is very slight it may soon get well; and even in severe cases there may still be great improvement. The recovery of power is generally greater and quicker in the leg than in the arm. When the arm recovers power quickly, it is a very favourable sign.

Theory of Paralysis.—Paralysis depends on the interruption of the current of nerve force proceeding from the brain or the spinal cord to all parts of the body. The nerves of the body proceed for the most part from the brain and the spinal cord. The best way of understanding the occurrence of a sudden loss of power or feeling in the side is to take the electric telegraph for an illustration. It is no matter how perfect the electric instrument may be at head-quarters, if some evil-disposed person cuts or snaps the wire in its course there will be no communication of the message beyond the point at which the wire is cut or snapped. This is very much like what happens in paralysis. The wires which connect the brain and the spinal cord with the limbs and skin and muscles are cut or severed. The nervous system is made up of *great centres*, in which nervous force is generated, and of *fibres*, which go from these centres to the circumference to transmit the nerve-force. The centres are made up of nervous cells connected with or running into the fibres which collect together to form nerves, which nerves go to all parts of the body. But, it will be asked, how come the nerve-fibres, or the wires, so to speak, to be cut or severed? for palsy happens generally without any violence, and is therefore, to non-medical persons, the more mysterious and appalling.

The mischief happens, very generally, at the centre, inside the head or spinal column, where external violence is least likely to be felt. Nerve-fibres are broken generally in one of two ways. First, by a gradual more or less insidious process of bad nutrition in the nervous substance, leading to a gradual softening of it, until fibre after fibre breaks, and a steadily increasing interruption to the transmission of nerve-power happens. Secondly, and more rudely and suddenly, by the rupture of a blood-vessel, letting out a little blood suddenly into the nervous substance, and so tearing it up and breaking nerve-fibres. Generally, indeed, even in the first gradual and insidious form, there is some fault of the blood-vessels, which impairs their elasticity and their permeability, and which renders them apt to break and give way. Here, then, is the explanation of paralysis—breaking of nerve-fibres, so that the will is not transmitted from the brain, nor the sensation from the skin and muscles. In other words, the wires of the great human telegraph are cut. If the softening is slight, not much harm may be done. If the blood-vessel that gives way and lets out blood is a tiny one, the clot will not do much damage, and will soon be absorbed. In either case a cure, or almost a cure, may result. On the other hand, if the softening of the nervous substance is advanced, or if the blood-vessels are very faulty, the prospect is not so good.

Causes.—What are the things which favour the occurrence of paralysis, which spoil the nerve-fibres, or the blood-vessels? In some cases this is a sort of constitutional disease, which comes on without much apparent cause. But there are some things which favour it, which it is our principal duty to explain. Such are care and anxiety, and an exhausting use of the mind, or the brain, which is the mind's instrument. Let people not be over-anxious, nor over-work their minds, nor apply themselves too monotonously to one occupation; for this will induce exhaustion of the brain, and paralysis. Then, intemperance of all kinds is very injurious to the nervous system and its blood-vessels. Spirit-drinking or beer-drinking in excess are perhaps the worst kinds of intemperance. These are two things which lead towards paralysis. There are other things which, in a person at all predisposed to paralysis, are apt to bring it on. Among these are extremes of temperature. The winter is very trying to people with any tendency to paralysis, and the colder it is, the more trying. A very hot sun, too, has a similar effect. The cold drives the blood of the body inwards, and loads the blood-vessels. The great heat applied to the head expands the blood-vessels till they break.

Treatment.—When paralysis happens, a doctor should, of course, be sent for. Pending his arrival, the patient's head and shoulders should be raised, his cravat, or any other tight clothing, removed. If he is cold, the feet should be put into hot water and mustard, and a mustard plaister should be applied to the neck. Persons who have had a paralytic attack, or who are liable to one, will greatly add to their chances of life and recovery by simple sober living, by not being too anxious, by avoiding great extremes of temperature, or very cold bedrooms, and very cold baths in the morning, which some persons of delicate constitution mistakenly suppose to be conducive to nervous vigour; but which, in fact—however suitable to persons of very robust constitution—are, like other stray remedies, unsuitable to less hardy individuals. There are many distinguished men living who have been and are paralysed, but who since their paralysis have done great work. We shall have, in another article, a short account to give of forms of local paralysis.

UPHOLSTERY WORK.

PRACTICAL DIRECTIONS AND USEFUL HINTS.

It is much easier to make bed and window curtains and chair covers than to make a dress; and to any one desirous of executing such work, not having previously tried to do so, the following hints will be found useful :—

To make Bed Curtains and Hangings.—Although bed hangings are not now so generally used as formerly, there are still many persons who like to have them; perhaps in a draughty room they may even be found necessary. To make them in the ordinary way, of stout chintz with a glaze lining, shall be the subject of the first article of our directions. We will suppose our bedstead to be one of that make called Arabian, and full sized—four feet eight inches wide—and with a high canopy. Twenty yards of chintz and twenty-eight of coloured glazed lining, both twenty-five inches wide, will be needed for the purpose. This measurement allows of curtains three yards long, a foot valance of twelve breadths, and a head valance four and a half yards long before pleating. Every one intending to furnish a bed must measure its size, and, if smaller, deduct for the chintz needed accordingly. The three yards long curtains will touch the ground. Curtains two yards and a half long are sufficient to keep off draughts, although less handsome in appearance, and will take a yard and a half less chintz, and also effect the same saving in the lining. In iron bedsteads, the head-rails for curtains are seldom so lofty as in the Arabian bedstead.

Commence with making your curtains. Cut off three lengths of three yards each. Fold one of these carefully, and split it in half through the centre with the scissors. This affords half a breadth for each curtain, to be run to the whole breadth. Each curtain is to have a breadth and a half. Take care to make the flowers go upwards, and both pieces to match. The join in the curtain is to tend towards the back of the bedstead. Cut three lengths of the lining, each three yards long. Split down one. Let the joins of the lining correspond with those of the chintz. Lay the chintz curtain across a table, width across, and lay the lining on it. Pin both together. Take two needles with long threads, and tack down each side. Then roll up the chintz at the upper end, draw the rest of it along the table, tack in the same way, and continue till finished. Tack across the ends also. If the chintz is wider than the lining, leave the same margin each side, which can afterwards be turned down before binding. Then neatly run the binding all round, and sew on six hooks to the top of each curtain. The hooks cost twopence halfpenny per dozen. The large brass round rings for the sides of Arabian bedsteads are one shilling and eightpence per dozen. Common curtain rings vary according to size; for simple iron rods, twopence halfpenny a dozen is an average price.

Nothing is handsomer for an Arabian bedstead than a deep fringe round the canopy, which will cost about two shillings per yard, and for the size we named require three yards. It is cheaper to make a six-inch wide valance of chintz, and edge with a narrow fringe, three inches wide, worth fivepence per yard. To save the expense of this, however, a chintz valance, with a broad border of the lining, looks very well. Take a piece of chintz, two yards long; split it in half. Again split the half. These two quarters, joined, measure four yards. Add another half yard. Take two and a quarter yards of lining; split in half. Join the length. Run the edge of the lining to the edge of the chintz lengthwise, and the glazed faces together. Turn over. Make the other two edges meet. This gives a deep border of lining to the chintz. Afterwards box-pleat it to a piece of the binding three yards long, taking care to hide the joins in the folds.

The foot valance, when the head valance is thus made, should also have a deep piece of the lining turned over in the same way. The quantity of lining named (twenty-eight yards) allows of this. To make the foot valance, measure off twelve pieces of chintz of five-eighths of a yard each, and twelve of lining of three-quarters of a yard each—that is, six-eighths. Join all the breadths the short way. Of course, you will first measure your bedstead, and see if this valance will be deep enough, allowing for a deep hem, and allowing, for the fulness, half as much again of the material as the actual measure straight round the bed allows.

But if the head valance is edged with fringe, then the foot valance should not have the lining turned over, but be edged with binding.

Pretty cotton binding costs fourpence halfpenny the dozen. When the curtains only are bound, two dozen will suffice. For the foot valance also, three and a half or four dozen. Or you can use silk binding at three-halfpence per yard.

If a handsome fringe is used in place of a head valance, and a handsome furniture is desired, every part should be edged with cord, worth threepence to sixpence per yard—about two dozen and a half yards. The curtains also may be two breadths wide, and pleated to the hooks at the top. But that is really superfluous. When cord is used, the curtains should be tacked together on the table, the face of the lining to the face of the chintz. Run together, very finely at each side and the bottom, and then turn as you turn a sash. The top is turned in and sewn together, and the sides and bottom edged with cord. The foot valance is treated the same way.

Having finished the curtain and valances, run together two breadths of lining with a half breadth between them, each two and a half yards long. A smaller bedstead may be fitted with two breadths only. Bind the top and bottom. This is to be nailed at the back of the bedstead, from the top of the canopy to the bottom of the head-board. Split two and a half yards of chintz in four, lengthways. Turn in the edges of each piece, and make a box-pleat the entire length. Put a band down over each seam of the head-lining, just tacked on, and two other bands in the centre of the whole breadths of the same.

Window Curtains for Bedrooms.—Bedroom window curtains are made just the same as the bed curtains, and are usually three yards long. Two yards and a half in length serve to keep out all draughts from windows, but look less handsome. A rich fringe valance looks best for bedroom curtains; but a chintz valance, either bound, or with a lining edge, is cheaper.

Cretonne Chintz and White Dimity.—Cretonne chintz is now much used for bed and window curtains. It is not generally bound, and is, therefore, made like dimity. A breadth is enough for each curtain, and is bound with washing binding. The valance for the bedstead or window is of the same, edged with a little washing fringe or tatted lace, and bed-foot valances with binding.

Valances.—All valances are box-pleated, except fringe ones, and set on a tape or plain piece of binding, which is afterwards tied or tacked on the bedstead. It is a good plan to tack foot valances to the palliasse or under mattress.

Chair and Sofa Covers.—Cut the shape of the chair cushion in soft paper. This serves as a pattern for the chintz. The best way is not to pleat the chintz to the shape of the chair, but allow a good deal to turn in under; make a moderately broad hem; run in a tape, and draw it up to the required size. Sofa-covers must be shaped by paper patterns, and ought to be taped at all the seams. They are much more difficult to make than chair-covers, and no special description of them can be given in print.

HOUSEHOLD CHEMISTRY.—XIV.

THE METALS.—COPPER.

WHEN the surface of this metal is newly filed, so as to expose a fresh surface, it presents a reddish appearance and bright metallic lustre. When this bright surface is exposed to the action of the atmosphere, it soon tarnishes, owing to the readiness with which it absorbs oxygen from the air, and its surface becoming coated with oxide. When acted on by the air for a still longer period, especially if at the same time the metal is exposed to the influence of moisture, its surface assumes a greenish appearance, and becomes covered with the carbonate. This change is due to the carbonic acid in the air uniting with the oxide previously formed on the copper. It is owing to the readiness with which this metal combines with oxygen and carbonic acid, that copper vessels require such continual attention to keep them in a state of brightness.

The carbonate and oxide of copper thus produced are soluble in various acids. This fact is taken advantage of when copper articles are cleaned with vitriol (sulphuric acid) and water. The acid in this case dissolving away all the tarnished portion of the metal, forms what is known as the sulphate of copper. It is, however, found by experience that articles cleaned in this manner tarnish much more rapidly than when polished without the acid. Copper is a very good conductor of heat, being much superior is this respect to iron; and it is for this reason that water boils, and food is cooked, faster in copper vessels than in iron ones. At one time copper pans were very much employed in kitchens for culinary purposes; but as the metal was found to be so easily corroded, both by acids and fatty matters, the plan was adopted of covering the inside of such vessels with a thin coating of metallic tin. So long as this layer of tin continued perfect, so as to have no portion of the inside of the vessel exposed to the action of its contents, such utensils could be employed with safety; but the tin, being so soft in its nature, quickly wore away, owing to the friction employed in cleaning out the vessels, and the uncovered portions of copper began to be acted on by the food, and to render it poisonous. While the vessel continued in that condition it was unsafe to use it for any culinary purpose. Even milk, if slightly sour, was capable, from the acid it contained, of dissolving a quantity of this metal.

When copper is exposed to the action of the acetic acid contained in vinegar, it dissolves, giving the liquid a bright green appearance, from the presence of the acetate of copper. At one time it was customary to put copper pence into jars of pickles, for the purpose of giving their contents a bright green appearance; but, although the vegetables thus acquired an attractive appearance, they were rendered poisonous to all who partook of them.

MEANS OF DETECTING ADULTERATION OF FLOUR.

THE great extent to which flour is adulterated is well known, and, therefore, to possess a knowledge of how to detect the several most common modes of adulteration is of no slight importance. The substances with which flour is most frequently adulterated are:—Plaster of Paris, the dust of burnt bones, pea or bean meal, and potato-flour. An easy general mode of testing the purity of flour is to squeeze it in the hand. The cohesiveness of wheat-flour is very great, and consequently the lump so squeezed in the hand will be a longer time before it breaks and falls it of wheaten flour than if the flour be adulterated. Plaster of Paris, dust of burnt bones, and potato-flour are all so much heavier than wheaten flour that adulteration by them may be easily detected. A sack which will contain two hundredweight of wheat-flour will hold three of potato-flour, so that should the flour be adulterated with any amount of potato-flour it may be detected by means of its weight.

Should pea or bean meal be mixed with the flour, it may be detected, if in any considerable quantity, by pouring boiling water upon a cupful of the flour, or by toasting a piece of bread made of it, the odour of the pea or bean being sure to rise while the meal or bread is hot.

Adulteration by means of the flour of inferior grains is more difficult of detection, but may be ascertained by pouring upon a spoonful of flour a little pure spirits of hartshorn. If the flour be wholly of wheat, the hartshorn will render it of a yellow colour, but if it be adulterated with other corn, the hartshorn will turn it to a pale brown, and if it be adulterated with pea or bean flour, it will become a darker brown.

Adulteration by means of potato-flour may be detected by means of acids. Take a spoonful, and pour upon it a little nitric acid; if the flour be of wheat, it will be changed to an orange-yellow; if wholly of potato-flour, the colour would not be altered, but the flour formed into a tenacious jelly; if, therefore, the flour be adulterated with potato-flour, it will not be difficult to decide. Again, take a spoonful of the flour, and pour upon it a little muriatic acid; if the flour be of pure wheat, it will be changed to a deep violet colour, without odour; but if potato-flour be mixed in it, it will then have an odour like that of rushes.

CROCHET.—II.

FURNITURE BORDER AND TASSELS.

THESE tassels are very handsome at the two ends of antimacassars, for toilette, frocks, &c. A crochet-needle should be chosen fine in proportion to the cotton. Work rather close.

The Border.

Make a chain the length required.

1st Row.—Double open crochet.

2nd Row.—1 tr. into every space, and 3 chain between each.

3rd Row.—Double open crochet.

4th Row.—1 d.c. into first space. 10 chain. Miss 2 spaces. 1 tr. on the first of next 2 tr. 7 ch., 1 plain on the tr. just made. 1 tr. on the second tr. of 3rd row, 10 ch., miss 2 spaces. Repeat.

5th Row.—1 tr. into every stitch of 10 chain, 4 tr. into loop of 7 chain. 7 chain, 1 plain on last tr. 4 more tr. in same loop. Repeat.

6th Row.—1 tr. over the tr. over d.c. of 4th row. 5 ch. Miss 3, 1 d.c. 5 ch. Miss 3, 1 d.c. 5 chain. 1 d.c. into loop of 7 chain. 3 more d.c. into loop of 7 chain with 5 chain between each. 5 chain. Miss 3, 1 d.c. 5 chain, miss 3, 1 d.c. 5 chain, miss 3, 1 d.c. Repeat.

The Tassels.

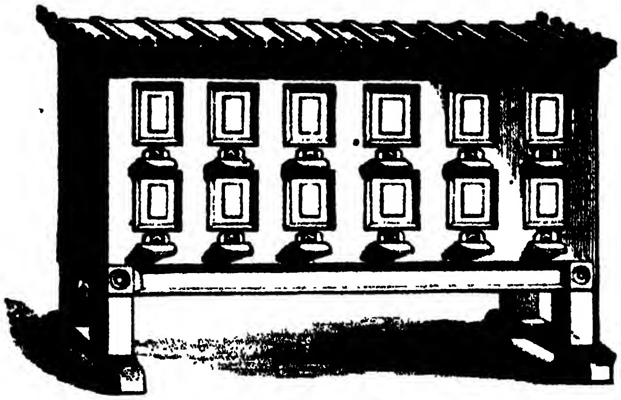
Take a book five inches wide. Wind the cotton to be used round it closely fifty times. Cut off the end. Pass a piece of cotton through at one end, and tie the strand of cotton tight. Cut open the other end. You now have a tassel of 100 ends. Take a tapestry needle, charged with a very long end of cotton. Tie one end of this tightly round the tassel, about an inch below the top. With the needle work a number of moderately loose loops through this piece tied round, towards the top. About six will be enough. Work them in button-hole stitch, but each stitch loose. Work a second row through these, and so on till you have covered the tassel to the top with a regular open net-work. Then run the cotton through all the loops, and draw them up tight. Tie the ends to the ends that first tied the tassel. Tie the tassel strongly to the border. There is to be a tassel to every point, and one to every inverted point.

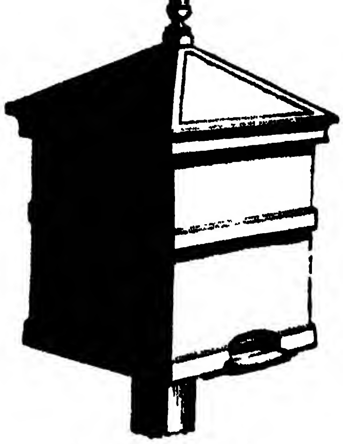
BEES, AND BEE-KEEPING.

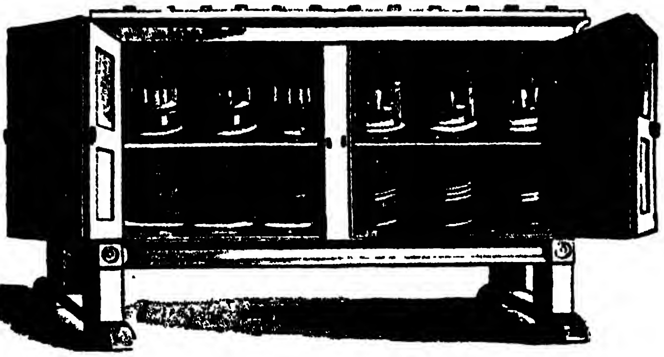
II.

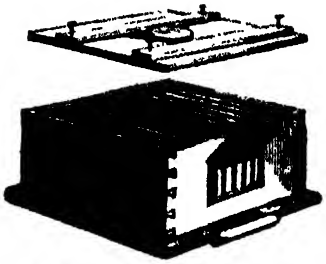
Collateral Bee Boxes.—As mention has been made of a "collateral hive," it may be preferred by some bee-keepers to the straw, and "capped straw hives," that have thus far been supposed to be in use; therefore it will be well to its construction, that its description and mode of use were first given.

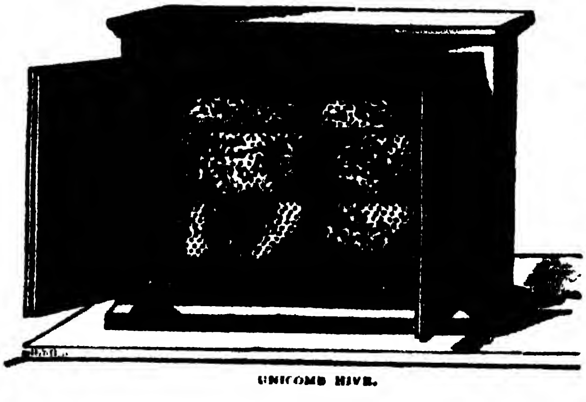
The oldest mode of bee-management seems to have been very simple: the bees were left to themselves until the autumn, when brimstone matches were inserted into the hive, the bees suffocated and killed, and ten or fifteen pounds of bad honey, smelling of sulphur and full of im-


BEE HOUSE FOR TWELVE HIVES.

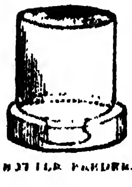

BAR-AND-FRAME HIVE.

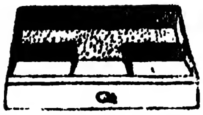

BACK VIEW OF BEE HOUSE.


STOCK BOX FOR BAR-AND-FRAME HIVE.


UNICOMB HIVE.


BELL-GLASS.


BOTTLE FEEDER.


FEEDING DRAWER FOR BEE-BOX.


LADIES' OBSERVATORY HIVE.

describe the construction and use of hives which are considered more profitable, more convenient, and more suitable; as affording the means of allowing the bees to be deprived of their honey whenever the owner of the hive may choose, and that without injury to the bees. By the use of the collateral hive the honey is obtained in a pure form, and means are afforded of enlarging the accommodation when requisite, thus preventing the necessity of the hive swarming and taking it into its own management. But the straw-capped hive seems so much more simple in

purities from the hive, were taken. When the temperature of a hive became oppressive to the inmates, they swarmed, the queen taking her departure with her subjects to seek a pleasanter habitation in the fields; but, alarmed by the sound of beaten frying-pans, the poor insects were again enclosed, to suffer the fate of suffocation at the right time. But what plan could be more cruel and unprofitable than this? More than a hundred years since the practice was denounced, and a more humane plan advised, but until within the last twenty years the subject was not much

thought of. At the present time there are about 100 or more plans of beehives. The illustrations on the preceding page represent a variety of apparatus for bee-keeping, manufactured by Messrs. G. Neighbour and Sons, of Regent Street and High Holborn, practical apiarians, and great authorities on the subject.

There is a difference of opinion as to the most suitable sizes for bee-boxes. From eleven to twelve inches square inside, and nine or ten inches deep, is a useful size; and the best are made of red cedar, as it keeps away moths. Boxes made of good sound red deal answer very well; the sides are about an inch and a half thick; the ends, top, and back, one inch. In this hive there are interior divisions, and openings, and communications, to be used as the case may require, and that without injury to any part of the combs or bees. On the top of the boxes are ventilators for carrying off the moist atmosphere of the hive. On a floor the three square bee-boxes are fixed collaterally, with three small openings for entrances, of a semi-lunar shape, about three inches long; they are covered by perforated or close tin slides, as circumstances require. The feeding drawers, with tins made to fit them, and a frame for the food to be sipped through, are near the entrance, or in some hives nearer the top. Bell-glasses are used as with the straw hives previously described, which, when the boxes are full, the bees fill with honey of the purest kind; these glasses are covered with wood for protection.

When the bees are placed in the centre box, they soon commence operations, and speedily fill it and the bell-glass with honey. When the glass is full, which is to be ascertained by opening a little aperture in the wooden cover, the tin slide is pushed away, which separates it from the bell-glass; and this is best done on a warm day, after previously cutting through the comb with a thin wire. When the glass is removed it is wrapped in a silk handkerchief and taken ten yards from the boxes, and placed a little on one side for any imprisoned bees to escape. The bees are to be admitted into the side boxes when the centre one is full, by withdrawing the slides, but some precautions are necessary in removing the boxes if filled with honey. The ventilator is to be opened the previous night, to lower the temperature and induce the bees to leave the box; then the slide between the middle and side boxes is to be inserted, and the bees left in darkness for ten minutes. If the queen bee is not in the box to be taken, any bees remaining in it will be in confusion; if she is there, the commotion will be in the centre box; if she is in the box to be taken, the slide must be drawn out again, when she will soon leave it. The box being emptied is returned to its place; and it will at least be seen that with this plan no fumigation or bee dress is necessary. The centre box is never to be touched, as it is the nursery for the young bees.

It is evident that collateral boxes have in some respects advantages over the straw hives; but they are very much more expensive. Still a lady can easily manage them, and the honey is considered by some persons purer, and obtained with less trouble, and in larger quantities.

An inexpensive hive, to answer the purpose of the one just described, may be made as follows:—

For the stand get a piece of strong wood (sound, and not old), about four feet long and two feet wide, as thick as it can be got; fix it to four legs, and let it project over the legs, in order to prevent the intrusion of enemies. The top should be smooth.

Cut five pieces of deal, of about one inch in thickness and ten inches square; join them firmly together, forming four sides and a top. Make two more like this—no *bottom pieces*, but the edges of the bottomless portions must be planed smooth, to fix close to the board on which they are to stand. Cut away a portion of the bottom of one side of each of the lateral boxes, and cut away the same of two opposite sides of that designed for the centre box; these cuttings are for communication.

Get two pieces of tin or thin wood, and place one between each of the collateral boxes and the centre box, so as to cut off communication between them until necessary to open it, when one is withdrawn, and then the side box thus opened is to be pushed close to the central one. Let the stand board be on an inclined plane, sloping towards the front, so as to throw off wet; and let the board project two inches, to serve the bees as a place on which to alight. A hole about an inch in diameter is to be made in front of the centre box, for the bees to go in and out of the hive. Cover the box with Roman cement, as recommended for the straw hives, as paint is very injurious to bees. Place the boxes under a sort of shed, to preserve them from heat and cold.

A small hole should be made in the top of each box, and a bell-glass vessel placed over it. The bees must be fed, when necessary, by fixing a feeder, as previously directed, at the top of the hive, to the holes for the bell-glasses; and ventilation may be allowed also through these holes, or a round opening may be made at the back of each box, stopped with a cork, which can be removed to admit air when necessary. Care must be taken that the cork fits tightly, and is not small enough to drop through the hole into the hive.

A set of boxes thus made will answer all purposes, as well as those made most expensively. Large quantities of pure honey may be obtained by this arrangement of collateral boxes. One hundred and nine pounds of honey-comb have been obtained in one year from three sets of these boxes, which, when valued at 2s. a pound, made an average of £9 16s. 8d. from each stock of bees in one season.

We have previously described the proper position of the hive, and may add that bees should never be kept near noisy places, factories, ditches, or dunghills—not even if behind the wall where the hive stands—as such positions may induce them to leave the hives. Water is necessary for the food of bees; but it must be allowed them judiciously, or it will do them more harm than good. A little clear stream running through or near the garden will prove beneficial; but if you cannot command that, let them have shallow earthen pans filled with water, and a little salt, with some pebbles in the pans for the bees to rest on while sipping the water, which must be changed every day. A pond or canal is very objectionable near the hive, as the bees are likely to be blown into them when returning heavily laden to the hive, and tired with their day's labour.

A flower-garden, abundantly stocked with flowers and shrubs that afford the most honey, is an important requisite, in order to prevent the bees wandering to a great distance for honey; and the garden should be constantly supplied with a succession of flowers, so that the hive may have a perpetual feast. The plants best suited to bees are broom, furze, thyme (especially lemon thyme), clover, crocus, heath, fruit trees, mustard, mignonette, sage, single roses, radishes, primroses, privet, parsley, peas, parsnips, marigolds, violets, lilies, laurustinus, daffodils, celery, cauliflowers, asparagus, sunflowers, hollyhocks, winter aconite, hepatica, wall-flowers, borage, winter vetches, ivy, turnips, and buckwheat, during summer and autumn. Melilotus, leucantha, and borage are considered the best bee flowers; phacelia tanacetifolia, salvia nemerosa, lythrum salicaria, and winter aconite are also good.

The hives should not be exposed to the noon-day heat; it will injure the bees and melt the honey, and even induce the bees to swarm; therefore the hives should be kept in a cool situation, and not too close together, as bees are very quarrelsome, and will, in their battles, sometimes destroy a whole hive. The shadow of a large tree standing at some distance may be allowed to afford

a shade, but it is better to have a light screen of wood attached to the hive, which can be very well managed by the little shed recommended in a former article.

Bees to Fill the Hive.—The bees to fill a hive are usually purchased. We hear occasionally of bees swarming in an orchard; but, generally speaking, they are the property of one of the neighbours, and have simply left their abode because they found it too small for their increasing autumnal labours, and have come out to seek a more commodious habitation; therefore when a neighbour is known to keep bees, he should be immediately informed that there are bees in the orchard, so that he may come and secure them in a hive.

The stock for your hive should be purchased either in the spring or autumn. Spring-time is best for moving bees, but not so good as autumn for ascertaining the exact condition of the stock; and great caution must be used in the purchase, or you may be deceived. Get your bees, if possible, from some one on whom you can depend. In June you can form some judgment for yourself, by visiting the hive about the middle of the day. If you see the bees crowding busily in and out of the hive, with their little rough legs covered with the yellow pollen from the flowers, and altogether showing that they are in earnest with their work, you may safely purchase the hive.

If you are about to purchase an autumnal hive, you should ascertain that the massacre of the drones has taken place, which you will know by observing the stand and the ground around it. Notice the movement of the bees, and whether they are lively and industrious; and if on your near approach they try to sting, it is a sign of vigour.

It is not well to send a hive to receive a swarm, unless you can depend on the person from whom you intend to have your bees; for he may give a second swarm, comparatively of no value, instead of a first

The best plan for forming an apiary is to purchase the hives in the autumn, when they are cheapest. The hives should be full of combs, and well stored with bees. The combs should be white; those of a former year are dark; if black, they are useless. If the hives have not been bought in the autumn, get them in the spring when the cold weather has passed away, as the bees get into the fields early in the morning, and come home well-laden. They do not come out of the hive in bad weather, unless they are in great want of food. The summer is an improper time to buy bees, as the heat of the weather softens the wax, and makes the comb liable to break; the honey, too, is thinner than at other times, and is wasted by running out of the cells, and sometimes the bees get covered with the honey and drowned in it.

Swarming of Bees.—As the young bees increase and grow with great rapidity, there is soon very little room for them in the hive, and the inhabitants gather in clusters on the outside, and hang from the stand; they cease to work, and no longer fly about in search of food. This is a sign that the bees are about to leave the hive, or, in other words, swarm; and their departure is further indicated by their silence while they are providing themselves with food for their journey. A low humming sound is all that is heard within the hive for two or three nights, and then the old queen bee leads off the first swarm, and the second soon follows, headed by the other queen bee; but the state of the weather materially regulates their movements. A shower of rain will send them all back to the hive, and a syringeful of water will have the desired effect in the absence of a shower.

If the swarm leave the hive, and remain in the air, with an apparent intention to fly off to a distance, it may be brought down by throwing sand over the bees, in imitation of rain. A gun will have the same effect; they will mistake it for thunder, and the practice of making a noise with shovels and frying-pans evidently owes its origin to the knowledge of the bee's antipathy to thunder.

As it is necessary to lose no time in securing the bees again, when a swarm is anticipated it is well to have an empty hive ready, and smeared inside with honey, to place near the bees, but not close to the hive they have left.

The bees, when they settle, collect in a heap round the queen, hanging to each other by their feet (as shown in our illustration to the preceding article), and the swarm, if thus suspended from a tree, may be easily secured by holding an empty hive beneath them, and giving a quick, smart blow to the branch. The hive should then be turned over on to a large white cloth spread on the ground, and one side of the hive raised by a brick. The hive and the bees should be sprinkled with honey and ale, and the bees confined in the hive for twelve hours. Some bee-keepers consider the swarming of bees an advantage; whereas it weakens the hive, and the number of bees will not be sufficiently large to allow of their being spared from the hive to gather honey, and therefore there will be scarcely sufficient food for themselves, and, consequently, no honey left for their owners; besides, if swarming is encouraged, the poor bees must be employed in building combs for their new hives and collecting pollen from the flowers, until the best part of the honey season is over; and thus at the honey harvest in autumn it will frequently require the contents of five or six hives to produce as much as might have been obtained from one.

By using collateral boxes and capped hives, swarming may be a good deal prevented, as they afford additional accommodation and ventilation. When signs of swarming are noticed, open one of the partitions and allow the bees to enter a fresh compartment; and if all be full, take off a box, remove the honey and comb, and restore it. The bung of a capped hive should be removed, and the bees admitted to the cap; if full, remove, empty, and restore it. The degree of heat at which to keep the interior of the hive is from 75° to 90° in the stock hive, and from 65° to 78° in the side boxes. The heat in the winter is sometimes above 70°; and in the summer-time about 120°, which will be much too great, causing the combs to fall to the bottom of the hive; this may be prevented by giving more room, and shading the hives from the heat.

It is very important that all operations with bees should be performed as carefully and quickly as possible, and yet at the same time in a very steady, cautious manner, so that the bees should scarcely know that their habitations are being arranged, otherwise they may sting; and, with the greatest precaution, they sometimes get under the sleeves and collar of the dress, where, feeling themselves in confinement, they will sting; and it is therefore a good plan to tie a thick gauze veil over a hat, and secure it tightly, so as to cover the throat; the sleeves should button at the wrists, and a pair of gloves be drawn over the sleeves. If proper precautions are taken, there is no danger of being stung; but a sting is soon cured by pressing over it the hollow part of a key to extract the sting, and then applying spirits of hartshorn; the poison is acrid, and requires an alkali as an antidote.

Sometimes a swarm is composed of young bees only, but usually old and young leave the hive together; the latter are distinguishable by the lightness of their colour. The old queen bee usually conducts the swarm from the hive, and the bees never swarm unless led by a queen, sometimes by two or even three. When there are several queens, the workers put all but one to death, unless the swarm divides, when a queen heads each division; but this is seldom the case. Sometimes a swarm seizes upon a hive already occupied, and two swarms occasionally select the same hive, in both which cases the bees fight for admission.

THE HOUSEHOLD MECHANIC.—XLV.

OVENS (*continued from p. 301*).

THOSE of our readers who may not have visited that first and fairest of European cities, Paris, and there partaken of the exquisitely delicious *pain blanc* (or white bread), butter, and coffee served as the early morning repast at the French hotels, may have probably observed the portions of almost rolling-pin fashioned loaves to be met with at some of the first of our own restaurants in London. French bread is readily distinguished by the pleasant though almost imperceptible sweetness of its flavour, its perfect lightness, the exquisite crispness of its crust, and last, but not least, its look of perfect cleanliness, and the regular, blooming appearance of its tempting, cinnamon-coloured crust. The superiority claimed for French bread is not imaginary, and perhaps a greater part of that superiority depends on the method by which it is baked than even on the manner in which it is made. We may well inquire, cannot so highly useful an art as bread-making and bread-baking be better taught in this country? The writer avowedly confesses that he should be glad to eat bread and butter for breakfast, tea, and supper, without any relish, were such bread and butter as they eat in Paris to be procured here; but, alas! French bread-bakers chiefly reside in the neighbourhood of Regent Street and Leicester Square, for the purpose of supplying the wealthy foreigner who cannot tolerate our bread, and is glad to pay the high price not unfairly demanded by the few who minister to his comforts by supplying him with something like the delicious *pain blanc* of his own country. With the hope of inducing English bakers to endeavour to emulate the success of their Continental *confrères*, we proceed to describe the construction and management of the French oven.

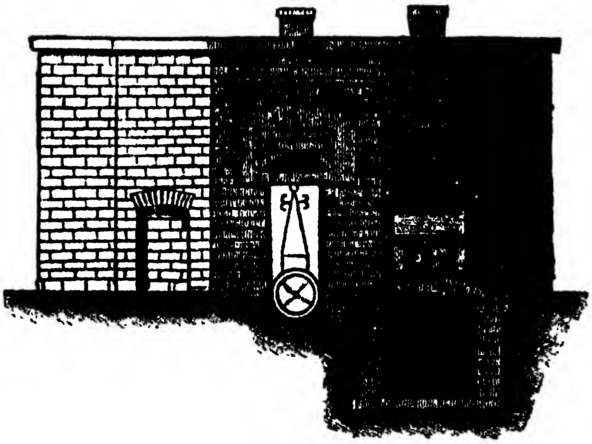


Fig. 1

At page 376, vol. ii., we described the hot-water oven, heated by pipes of hot water which surround it. The regularity and undeviating quality of baking by the hot-water process must be familiar to everyone; yet while baking by means of the hot-air plan, which we are about to describe, resembles that by hot-water pipes, it possesses an insurmountable advantage over it, hot air having the power of giving a vigour and what is termed a "flavour of baking" to the bread, which the hot-water oven can never impart. The oven we shall in the first place speak of is that of M. Rolland; and in the second place, we shall describe the grand principle upon which the best baking establishments of Paris are constructed.

Hot-air Ovens.—To speak shortly, these ovens may be said to represent the French system of bread-baking. The means of heating ovens by hot air is, without doubt, the best employed—it far surpasses either wood, coals, or hot water. It is greatly attributable to this excellent system that the far-famed Paris bread has become so distinguished; indeed, its excellence is scarcely less owing to the system of baking than to the skill and care employed in making. These ovens are heated by means of hot air passed from the furnace, and circulated beneath and around the oven (properly so called) by numerous flues, and admitted by certain apertures into it. The smoke and vapours, too, arising from the furnace, although kept quite apart from the hot air, are made use of to aid in heating the oven before being passed into the chimney. These kinds of oven are properly termed "aërothermal ovens;" by the French they are styled *fours aërothermes*, but generally by ourselves "hot-air ovens." The exteriors of these ovens are very plain in appearance.

The oven of M. Rolland has received unqualified approval from the scientific bodies of France, and is remarkable for the advantages it possesses over other ovens by reason of its revolving principle. Fig. 1 represents its exterior. The cleanliness of this oven is perfect, as not only the smoke of the furnace, but the vapours likewise, are precluded access into the oven. No wood, coals, or ashes ever find admission into it. The method by which the oven is heated and the heat kept up, is a system of flues ramifying in all directions around the oven, both beneath its floor and over its arch. By the action of hot air generated in the furnace and contained in these flues, the oven is raised to the requisite temperature, and the bread is baked. Nothing can exceed the perfection with which either bread or small articles may be baked in this oven. The revolving principle by which it is characterised necessarily contributes to success in every way. To fill the oven, those parts only of the platforms (or shelves) which stand before the mouth of the oven are spread with loaves. By means of turning a handle, these platforms may be moved round to any extent most convenient for completing the filling of the oven, or placing in of the bread or other articles to be baked. A short peel only is, in consequence, necessary, and the articles are able to be very nicely arranged. Another great advantage obtained by the revolving system is that when the oven is once filled and the door closed, it is unnecessary to open it, which under ordinary circumstances is absolutely requisite for the purpose of inspecting the progress of the baking, and, if necessary, removing those articles near the mouth and cooler part of the oven into the places of those at the back and hotter part, otherwise some would be burnt whilst others would be scarcely baked. In this oven jets of gas are placed on jointed arms in number coinciding with the number of platforms, which keep the oven illumined, so that every article is able to be inspected by turning round the platforms, by means of the handle, and looking into the oven through a window fixed either in the wall or door of the oven.

It has been determined that constant motion in air heated to the right degree of temperature greatly tends to increase perfection in baking, and it is not impossible that *occasional* motion, by means of turning round the platforms, may likewise, in some degree, lead to the same result. The advantage of motion in an oven has already been spoken of, when describing the "biscuit or traversing oven." The advantage, however, of the revolving principle is especially great in the particular that should the heat of the oven appear to be too rapid in one part and too slow in another, the loaves or contents may be successively brought to the hottest part by turning round the platforms, by means of the handle, thus saving the necessity of shifting the articles. This advantage is great, as although the oven is constructed on so perfect a prin-

ciple that the flues are equally distributed about all parts of it, and the door is kept unopened until the batch is baked, nevertheless the temperature is necessarily somewhat more intense in that part of the oven immediately above the furnace, and in the direction of the junction of the flues. The revolving platforms, which in this oven stand in the place of the floor of the ordinary oven, are covered with glazed tiles; they are thus able to be kept perfectly clean, for which purpose the revolving principle is no small aid.

Fig. 2 represents the system of the fire-grate and flues. The furnace, as will be perceived, is placed at a distance from the mouth of the oven. The remainder of the system is so patent on the diagram that it does not require any explanation by words.

Fig. 3 represents the sole or floor of the oven, above which are one or more platforms. This oven, as will be seen by the diagram, differs in shape from the ordinary oven, being round in construction, for the purpose of enabling the platforms to revolve. Above the oven, over the furnace, is placed a boiler or iron pan, for the purpose of providing hot water for kneading the dough. This boiler, it must be borne in mind, should be kept scrupulously clean, and well scoured out with sand, as otherwise the bread will be in danger of being discoloured by rust, &c.; and should the boiler be fitted with leaden pipes, it will be necessary to take care that it is kept supplied with water, otherwise the pipes will be in danger of being melted. But in such case we recommend the leaden pipes to be removed and glazed iron ones substituted.

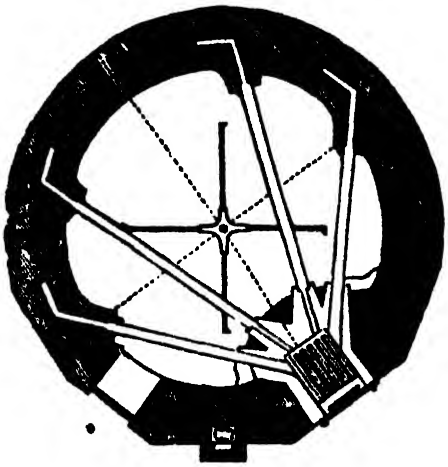


Fig. 2.

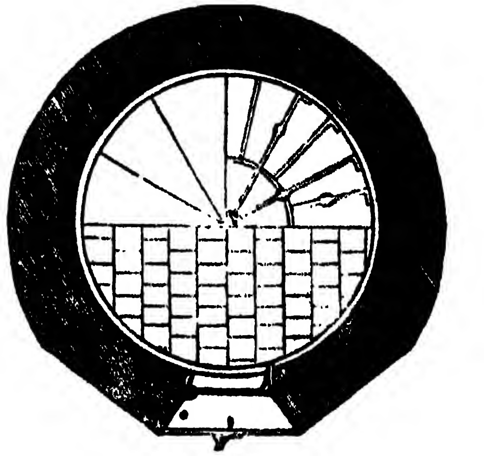


Fig. 3.

That the oven be heated to the "right temperature," is the first matter of importance in baking. For this oven, the "right temperature" varies between 410° and 432° Fahr., according to the nature and size of the articles to be baked. The temperature may be best tested by means of a thermometer placed inside the oven; in the absence of this it may be ascertained by throwing a handful of *new* flour into the oven; if it is rightly heated the flour will quickly become scorched, or turn a light-brown colour, but neither very dark nor burnt. Full particulars of this test are given in a former article. The platforms should be turned round (or revolved), at least, every ten minutes.

The following general rules are necessary to be observed:—First, that the furnace fire be kept regular, or at a uniform degree of intensity, which can only be effected by feeding it frequently, but moderately. In the next place it is requisite that when the fire is once lighted the furnace door be kept securely closed; for if the door be either left open or ajar, cold air will undoubtedly rapidly rush in, pass over the coals, and enter the flues which circulate both beneath and above the oven, and so reduce the temperature of the air with which they are charged, and render it impossible to raise the oven to the proper degree of heat. Leaving the door open or ajar will likewise have the effect of damping the heat of the fuel at the surface, and reducing the impetuosity with which air is wont to rush through the bars of the grate of a furnace, the door of which is kept securely closed. The door, it may be remarked, cannot be made to fit too closely.

The next point of importance to be observed for the successful use of this oven, is that the flues be kept clean to admit of the flame and heated air passing through them. The best method of cleansing the flues is to pass through them a brush fitted with a wire handle, which should be done once every month. The vertical flues formed in the brickwork may be swept from the exterior or the pit of the oven, according to its construction; four times a year will be found often enough for this operation. Cleansing between the floors should be more frequent, say every week or fortnight.

The time of baking with this oven will necessarily vary in accordance with the nature and size of the articles, but rather more than an hour has been sufficient for moderate-sized loaves, which have been baked in that time with perfect similarity and exactness.

In our next article we shall proceed to describe the grand principle upon which the ovens of the first (that is, the best) baking establishments of Paris are constructed, and which we have incidentally mentioned when describing the hot-air system.

In the first place, it is necessary to state that by the system under which this oven is heated, it is optional whether there be two ovens or one. If two, both will be heated by the same process, and at the same time. This oven is the *four aërotherme*, mentioned on page 324; it is the oven of MM. Lemare and Jametel, improved. Neither fuel nor smoke is allowed access to its interior; a current of heated air only is passed in by way of apertures dispersed around the sole of the oven. The air is heated by means of a furnace which may be fed either by wood or coke. The furnace is placed below the oven.

Diagrams will also be given illustrating the construction of the oven, the position of the furnace and ash-pit, the hot-air chambers and pipes, and the system of flues; and directions on its temperature, and the time required for a batch.

FURS.—II.

MANUFACTURE, PRESERVATION, ETC.

It will doubtless be interesting to know a little about the manufacture of furs, and as all information of the kind is worth obtaining, we will say a few words upon the use of furs in the making of hats.

The skins chiefly used in making felt for hats are those of the hare, the rabbit, the beaver, and the nutria; the skins brought from the North of Europe and America being divided by furriers into two sorts, seasoned and unseasoned. The fur taken from the animal in winter, when it is in the greatest perfection, is seasoned fur; the unseasoned is obtained at other periods of the year, and is coarse, short, and hairy, and not above one-third the value of furs taken in winter, at which season, it is obvious, the animal has need of its best and thickest covering; but both kinds are manufactured in the same manner.

Hare skins, after being carefully removed from the animal, are rubbed with an instrument called a rake, which resembles a dinner knife, with teeth like a saw. This process is to clear away all impurities upon the skin, as any impurity would greatly injure the fur; but the workman has to be very careful that he does not tear up any portion of the clean fur, or in any way injure it so as to cause a loss in its value. When the skin is cleaned with the rake, it is damped on the pelt side, and laid pelt to pelt under heavy weights, to remove by this pressure any ridges or unevenness. The skins are then sheared, to remove the superfluous hairs of no use for felting purposes, and this part of the work must be most carefully done, otherwise the quality and quantity of the fur will be seriously injured. The common shears used for sheep-shearing work quickly, but not so safely and well as those used by tailors; and this part of the manufacture of furs is of such great importance, that workmen are generally employed expressly for it.

When the skin has been thus treated, it assumes altogether an altered appearance; the back has changed from a brown to a jet black, shading off lighter to the edges of the skin, which is now ready for the process of "rounding," viz., removing all the uneven portions, and making it fit for the cutting-board.

The cutting-boards of furriers are made of willow wood, and when used they are kept moistened with water, to prevent the edge of the cutting-knife from being too quickly raised; steel knives are preferable to iron, as they keep their edge longer, and are lighter for use. The edge of the knife, however, must not be fine, but rough, or it will not cut the fur off the skins; and to obtain this rough edge the knife is frequently rubbed on a piece of common freestone. On the skin are laid instruments made of tin, against which the cutting knives and these are contrived in such a manner as to gather up the fur, and to keep it in an unbroken lump or fleece, enabling the workman to sort it with perfect ease and regularity.

Rabbit skins are cut like those of the hare, but they are dressed in a different manner. As the skin is covered on the pelt side with fat, it must be removed when the animal is first opened, by pressing the knife used in opening it upon that part of the pelt where the fat rests till it gets between the cuticle, when the whole of the greasy matter may be removed, and a little whitening rubbed over the spot. If this part of the operation is not well attended to, the grease will get mixed with the fur and damage it considerably.

The hair which covers the top of the fur cannot be removed from the rabbit skin in the same way as from that of the hare. It cannot be operated on by the shears, but the hairs must be pulled out with a short knife, about three inches long, held so as grasp the hair between the knife and the thumb. It must be lightly done, or the hair will be cut and the fur pulled out, causing great injury both to the quality and quantity of the fur.

Beaver skins are manufactured into felt by much the same process as those of the rabbit; but beaver skins contain more fat, and therefore require greater time and care in removing it; and fuller's earth, mixed with whitening, must be used to imbibe the fatty particles. The outside hair is pulled off, but the cutting of the skins is performed by machinery, the thickness and regularity in the pelt affording facilities for this mode of operation, which the generality of skins do not. The fur of the beaver is sorted into three or four different kinds; but the portion cut from the cheek is the most valuable. White beaver is very scarce, and used for fine drab hats.

Nutria skins are dressed like rabbit skins; but the outside hair being much stronger, a sharper knife and greater force are required to remove it; and nutria skins, being full of fat, have to undergo a washing with soap and boiling water previous to their being submitted to the pulling process. The skin is laid with the pelt downwards, and well scrubbed on the fur side with a brush till the grease is entirely removed; it is then washed in cold spring water, which is extracted by means of a piece of wood made for the purpose. After this the skins are dried by a stove or hot fire, and are then ready to go through the other manufacturing processes.

Beaver and nutria furs, before they are used for making hats, go through the operation called "blowing," to clear them of the short black hairs which remain among the fur after it is separated from the pelt. A blowing machine consists principally of a cylinder, in which the fur is placed; and by means of a fly-wheel, situated within the cylinder, the fur is thrown up, and the hairs fall to the bottom, leaving all the fine fur upon the top. The fur hares and rabbits is also used, partially, in a blown state for the nap or outside covering of hats.

Other furs, besides those above mentioned, are occasionally used by hat manufacturers—those of the otter, the seal, the musquash, and the mole. The otter's skin is as fine as the beaver's, but it does not so well retain its black colour, turning brown or coppery. The mole's skin requires no previous dressing before cutting for felting purposes, as its fur is fine throughout; but it is not extensively used in the hat manufactory, on account of the shortness of the fur.

By keeping the fur off the rabbit skin a moderate length of time after it has been removed, it improves in quality, but hare fur does not; and great attention should be paid by those who keep large stocks of fur on hand, as well as by those who have only the charge of their own muffs, with regard to the place in which they are deposited. If it be damp, the furs will rot; if too dry, they will diminish in weight; therefore the place should be moderately dry and cool, and well aired; and no skins will keep longer than twelve or eighteen months, without being subject to injury from moths or cockroaches. Constant attention is required to preserve furs in good condition.

Furs differ considerably in quality, from climate and other circumstances. The best rabbits for making the finest hats are produced on the east coast of England, from Lincolnshire to Berwick, the skins being all about the same size and quality; farther north they become smaller, and the fur weaker and shorter.

Hare fur is superior in Great Britain to any place on the globe for hat manufacture; but silk hats are now so much used, as preferable for lightness and cheapness, that hats known by the name of "Beaver hats" are not so generally worn. Felt hats, nevertheless, supply their place.

Preservation of Furs.—In order to keep furs in good condition, it is necessary to guard against damp and the depredations of the moth.

Furs should never be exposed to moisture, as the delicate structure of the fine under-fur cannot be preserved

any dampness is allowed to remain in the skin; therefore, they must be kept very dry, and when they have been exposed to damp or rain it will be necessary to dry them at a moderate distance from the fire, as moisture decays the fur.

There are five species of moths that prey upon cloth and fur, and to protect furs from these little insects they should be combed and beaten with a small cane, and before they are put away for the summer they should be carefully secured in calico, with an outer covering of dry brown paper, and put away in a box into which moths cannot enter. If the box has been previously used it should be well cleaned, or re-lined, to avoid any danger that may arise from remains of depredators. During the summer, furs should be examined once a month, and be beaten and aired if there is any danger from the damp; but valuable furs should be taken at the end of the winter to the furrier's, to be examined and preserved.

ODDS AND ENDS.

To ascertain whether White Fabrics of Wool or Silk have been mixed with Cotton.—Suspend some of the fabric in a wide-mouthed bottle containing chloride of lime, taking care that the tissue does not come in contact with that substance, but be only exposed to the gas (chlorine) evolved from it. After the fabric has been exposed to the action of the gas for a time, it will be found that while the cotton threads continue as white or even whiter than before, the silk and the wool have become completely yellow. Another way to ascertain it is, to separate the threads of the fabric we wish to examine, and then set them on fire. Wool and silk will not burn without shrivelling up, and giving out a peculiar smell, while the cotton thread at once burns rapidly away.

Apple Butter (American).—Fill a preserving pan with peeled, quartered, and cored apples. Add cloves, allspice, and cinnamon, not too strong. Cover with good cider, and boil slowly, mashing with a wooden spoon, until the whole becomes a dark brown jam, with no more juice than suffices to keep it soft and buttery.

To Remove Stains from Woollen Dresses.—Make a thick rubbing of soap on a damp nail-brush. Spread the stained part on a deal table. Scrub with the brush and a sprinkling of water till quite removed. Take a wet cloth and wipe off the soap.

To Remove Ink Stains.—If spilt on a table-cloth or carpet, take up quickly all you can into a spoon, and throw it in a plate or saucer, or any china article which will wash clean, or even in emergency on stout double brown paper. Take a rag or coarse cloth, dip it in cold water, and squeeze it out. Rub the stain with it, and beyond the stain on all sides, quickly and plentifully, till *every* mark of the ink has disappeared. If very promptly done, no trace will remain. A second wet cloth may be used to finish with. Cloth table-covers are generally recovered this way. Almost any stain falling on a table-cloth, carpet, or hearth-rug can thus be removed by prompt measures.

Ink on Linen, Calico, or White Muslin.—Immediately lay the damaged part of the article in plenty of milk. Immerse it well. Let it lie. Then rub it well. Let it lie, and rub it alternately all day. Only very hard rubbing will get it out, but every vestige may be removed.

To Improve Sandy Soils.—Mix well together ten loads of stable manure, five loads of clay, twenty bushels of ashes, and an equal amount of lime. Let these remain in a heap for several months, when the compost will be ready for use. By this means poor sandy soils may be brought to a state of permanent fertility.

To Remove Grease Spots from Dresses (Woollen), Furniture, Carpets, Table-cloths, &c.—Make the poker red-hot. Hold it over the grease spot within an inch of the material. In a second or two the grease will disappear. Be sure not to let the poker touch the material to burn it.

To Remove Grease from Silk.—Lay the silk on a table, on a clean white cloth. Cover the damage thickly with powdered French chalk. On this lay a sheet of blotting-paper, and on the top a hot iron. If the grease does not disappear at once, repeat the process.

To Remove Port Wine Stains.—If a glass of port wine is spilt on a dress or table-cloth, immediately dash all over it a glass of sherry. Rub vigorously with dry soft cloths. No stain will be left.

To Clean Ladies' Kid Boots.—Dip a rag in almond oil, and remove all the mud from the boot, a piece at a time, drying as you go, and never leaving the leather moist. Polish with clean rag and more oil. If you dislike the dulness this process leaves, when quite dry polish with the palm of the hand. Kid is thus both cleaned and preserved.

Why Potatoes do not always Keep.—It has been found that those potatoes keep the best in which starch is the most plentiful. The amount of starch contained in this vegetable diminishes the longer it is kept. This is probably due to its becoming converted into sugar and gum. Potatoes examined in April have been ascertained to contain three per cent. less starch than they did in the previous October. The albumen contained in the potatoes was also found to have diminished in quantity.

To Wash Silk.—Lay the silk smoothly on a clean board, rub soap upon it, and brush it with a rather hard brush. The amount of brushing requisite will depend on the quantity of grease upon the silk. When it has been sufficiently brushed with the soap to cleanse it from grease and dirt, it should be well brushed on both sides with clean cold water. A little alum infused in the last water with which the silk is brushed will prevent the colours from spreading. Should there be any patches of grease upon the silk, they should be removed as previously described, or by the application of a little camphine and alcohol. Folding or wringing silk when wet must be scrupulously avoided, as creases made in silk when wet will never disappear; and, in like manner, *hot suds* must not be used for washing silks, as it will in most instances remove the colours.

How Saucepans are Enamelled.—The insides of saucepans and other iron vessels are often enamelled; this is done by first making the surface of the iron chemically clean, by exposing it to a gentle heat in a mixture of sulphuric acid and water; the time it has to remain in the acid varying from six to twenty-four hours. The article is then to be removed, cleansed with a brush, and well washed with water. The surface of the metal to be enamelled is then to be covered with a preparation of calcined flints, borax, and clay free from iron, well ground together, and made into a frit with water. The vessel is put in a warm place, until this coating becomes quite dry. Then another coat of a different composition is to be applied over the preceding one. This consists of glass (finely powdered, and containing no lead), borax, and carbonate of soda; the ingredients being carefully mixed all together into a paste with hot water, and well dried. This composition is to be reduced to fine powder, and dusted over the coating previously applied. The article is then placed in a kiln, and exposed to a degree of heat sufficient to fuse the composition into a kind of glass or porcelain. When iron vessels enamelled in this manner are used, care must be taken that the enamel is never exposed to a higher temperature than that at which water boils—212° Fahr. For this reason, they should never be placed by the fire, or on a stove, without a sufficient quantity of water in them.

SHIRT-MAKING.

SHIRT-MAKING at home has fallen into disesteem, a result chiefly referable to two reasons. First. on the part of the men, because home-made shirts are so ill cut as to be uncomfortable, untidy, and soon soiled; second, because the labour of shirt-making is close and unpleasant, and, undoubtedly, trying to womankind. Yet how many devoted sisters, mothers, wives, and maiden aunts there are, who would sit "stitch, stitch, stitch," if they could be sure of attaining a satisfactory result!

The supremacy shop-made shirts, as they are called, have obtained over home-made, is due to the superiority of their cut. Home-made almost invariably "bag," as the expressive term is, at the front or breast. This is because they are cut too wide in the breast. All the shop shirts are narrow there. The patent shirts are very narrow in the breast, and short on the shoulders, bringing the top of the sleeve, which is roomy, on the shoulder, and forward towards the chest. The result of this is a perfectly free play of the arms without moving the shirt-front. In the home-made shirt, also, there is too much room given about the collar-bone, and the front is too long; hence a riding up from the waist, and a lopping down from the throat.

There are three cuts of shirts which have been patented, and we will describe the advantages of each. As a first example there is Nicoll's patent 42, Regent Circus; these shirts are cut with flat small fronts, oval at the waist (similar to Fig. 1). There is scarcely any amount of fulness where the front at the waist joins the skirt; but the shirts are made without yoke, with straight shoulder-bands, and a semicircular piece at the ball of the neck (see Fig. 2). For youths, and young and slender men, there is no fulness at all at the back of these shirts; they are perfectly plain, and for summer wear very cool. For stouter men, more or less fulness is necessary. The shirt is plain all the way down at the sides, which, these patentees argue, renders it more elastic on the body, and easier to take on and off, stays in shirts (as in Fig. 3) rendering removal from the body more difficult. The round piece at the back of the neck, like the collar-piece, is to drop the hind part of the shirt more, in order to cover the swell of the lower part of the figure, which is uncomfortable if left but partially covered, and for that purpose it is a better shape than the old-fashioned yoke.

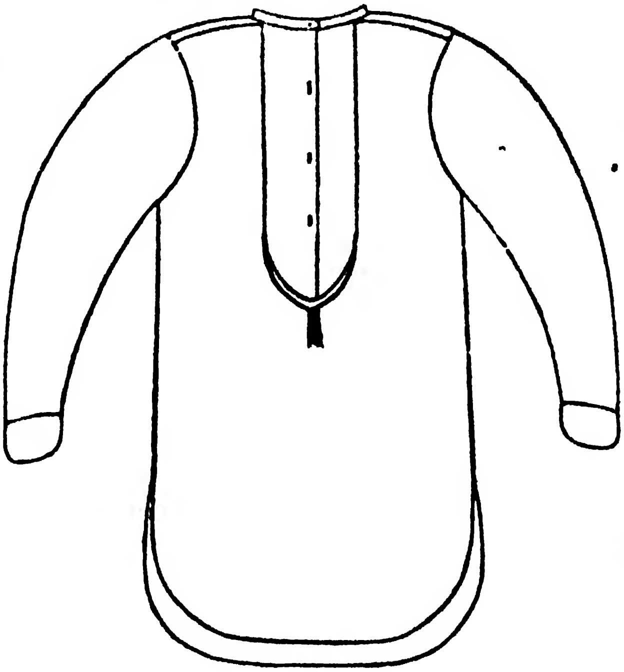


Fig. 1.

A garment recently purchased, ready-made, by a slender individual, was without yoke or equivalent; it was cheap and slop-made. In front it was long enough in the skirts, but behind even the slight swell of a meagre figure belied the proportion, and the unhappy owner very frequently remained partially uncovered and exceedingly uncomfortable. Persons cutting and making garments would do well to bear in mind the outline, the swell, and circumference of the figure they have to cover. A shirt, if the coat be removed, may always be tried on over the garments, and the just quantities of material, relative to the existing figure, be noted.

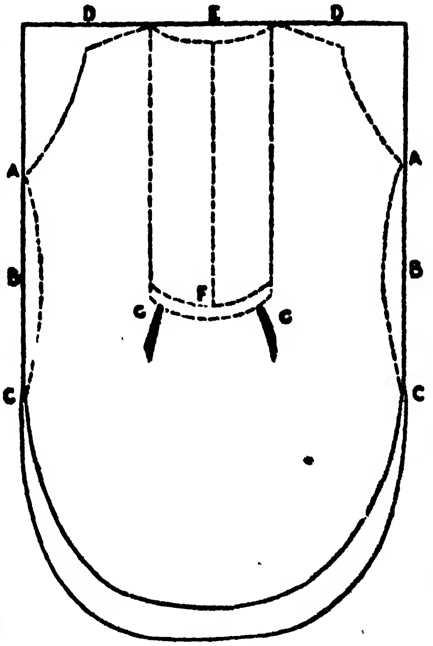


Fig. 6.

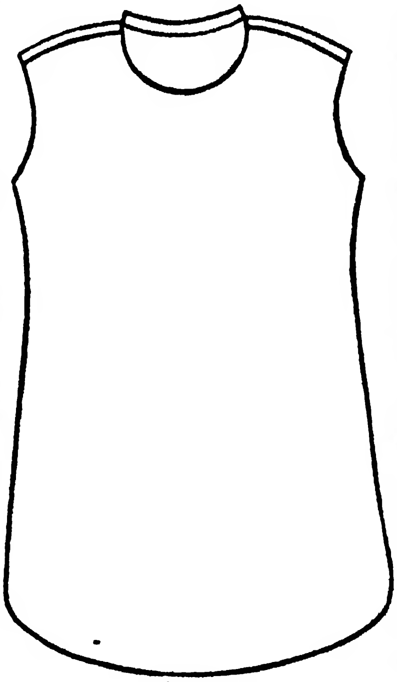


Fig. 2.

Another shirt which has been patented has the ordinary square-shaped front, the yoke, an extremely narrow breast, and is shaped in at the side so as to form a very slender waist; the front is shown in Fig. 3, and the back of the yoke in Fig. 4. There are possibly many persons, martyrs to fashion, who would duly appreciate the slenderness of the waist in such a cut. But, without aping a ridiculous figure, men are right in preserving the natural outline as far as they can with comfort to themselves.

The latest fashion in shirts is perfectly plain in front, without any pleats. Labour is much saved by this means.

Many of the dress shirts are made with a fine cambric half-inch wide frill, very neatly hemmed and whipped in down the outer edge of the front, full enough to allow it to be small fluted with an Italian iron. Some dress shirts are embroidered in raised work in satin-stitch over the plain front; but perfectly plain fronts, secured with studs, are also worn for full dress, and are simple yet stylish in effect.

The bodies and sleeves of all shirts now are made of longcloth. That purchased at one shilling per yard is excellent. It is an inch or two under a yard wide. The fronts, collars, and wristbands are of linen double.

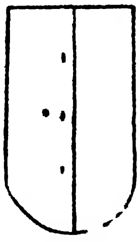


Fig. 8.

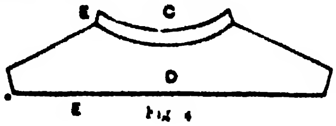


Fig. 4.

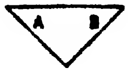


Fig. 5.

Fig. 10.

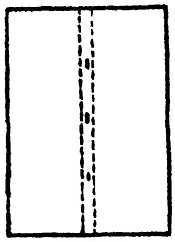


Fig. 9.

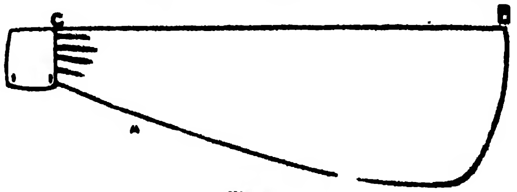


Fig. 7.

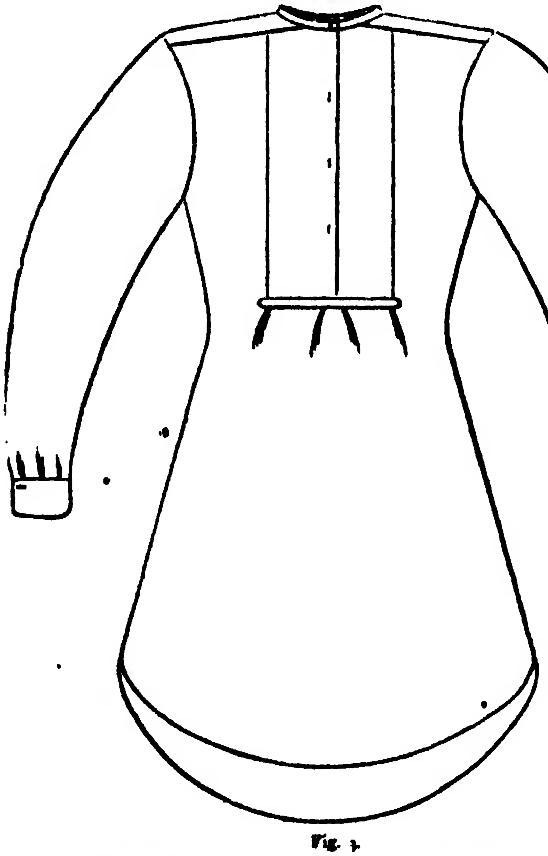


Fig. 3.

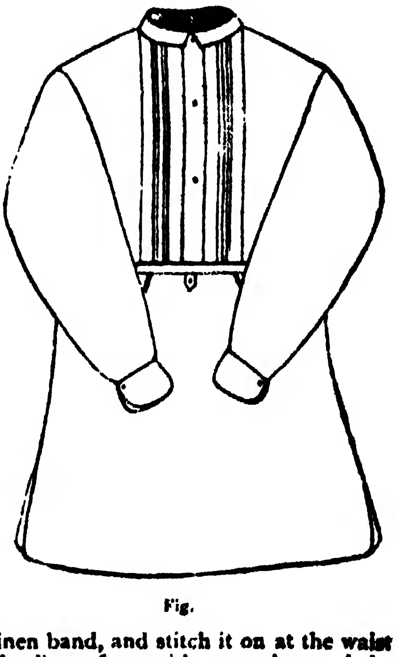


Fig.

To make a shirt, cut two yards of longcloth off and double it, one piece two inches longer than the other. Cut them in half. Round the lower part off, about eight inches up. (See Fig. 6.) Slope a little out of the sides, A to B; run and fell them from A. Put in inch-square gussets at C, and hem round the rest as narrow as possible. (See Fig. 5, the gusset.)

From A to D slope off three inches, rounding it off, or in other words, rounding it out for an armhole. Cut a yoke like Fig. 4, about fifteen inches long, two deep at the back, C to D, and three deep at the part from E to E. The front is set in plain, also the back, excepting four inches or less in the middle, which is gathered. When the front of the shirt is finished, it is gathered on from E to D at the shoulders. The neck-piece and back are first hollowed out, the front an inch lower than the back. To complete the front ready to sew to the yoke, cut the linen either round or square (Figs. 8 and 9). Run the two fronts together, one an inch over the other, having first turned in a narrow piece all round the edges of each, and tacked it down. Make a two-inch wide pleat down the front of the shirt, from E to F (Fig. 6). Lay the linen front on this at the dotted line from E to F, and C to C; first pin, then tack it down. Cut out the longcloth in the centre under the linen front, leaving a narrow piece, but first very finely stitch the linen to it *down the two sides*—not at the waist. Now cut out the longcloth. Run the longcloth at the waist, and gather it to the linen. Cut an inch-wide linen band, and stitch it on at the waist in front, covering the linen front with one edge and the shirt with the other. Cut a second pair of linen fronts like the first. Untack the first linen fronts; run the second linen fronts to them, wrong side out; turn the whole; turn the second linen fronts down as a lining to the first front; tack all round; hem neatly to the sides. Back the band at the waist with a lining as a band; then stitch the edge of the under side of the front. Stitch the upper edge also, and add a second row of stitches about an inch in, or not, to fancy. Make three button-holes horizontally, on both sides for studs. The front can now be joined to the shoulders. The collar-band may be straight, but is generally a shaped piece, straight at the top, where it is double. It must be an inch

larger round than what is easy round the throat, to button over in front. At the back this band is over an inch deep; in front, not half an inch. Make the holes in front for a stud to button. The collar is double at the top, stitched, and stitched on to the neck of the shirt. There is a button at the back in the centre. The collar must be made to fit, exactly the same size, and the merest imperceptible trifle over. If too small, the shirt-band will wriggle and slip away down the neck. If too large, the collar will bulge and be very troublesome, and must be awkwardly pinned instead of neatly buttoned.

The sleeve is cut the shape of Fig 7. The longcloth is doubled on the cross from B to C, nine inches wide at the top, double. It is run and felled together, and left open at the wrist. Two inches at the back of the wrist are gathered, the rest plain. The wristband, of linen, double, usually measures four inches (double), and three inches wide. It is cut in two pieces, run together at all the edges, except the edge to be joined to the sleeves, turned inside out, tacked flat, and stitched near the edge. The top is then stitched to the sleeve, the under side hemmed down. There is a button and button-hole next the cuff, and two stud-holes at the other edge. Some sleeves are set in a half-inch band first, and then the cuff laid on. Others have narrow straight cuffs, easy to turn down under fresh, detached cuffs. (See Fig. 10.)

The sleeve may be put in by running it into the armhole turning down the sleeve inside rather broad, and stitching it in place on the right side, or by lining all round the armhole with a wide shaped piece.

Some gentlemen object to the place where the cuffs button, because the links come just under the hand in writing. To obviate this, instead of leaving the opening in the seam at A, Fig. 7, cut at C the top of the sleeve, and reverse the opening of the cuff also.

For those gentlemen who still prefer tucked fronts, these directions for cutting the front are given First run in the linen the desired number of tucks. Thus, for what is called a fine tuck front, tack a hem to each side an inch wide, to be afterwards stitched. Behind each hem fold three tucks, first tacked, then stitched. Then tack the fronts, the left side hem completely over the front side hem. Put the fronts into the shirt as already indicated, and stitch it to the longcloth. The front, where it is cut away, is turned in, tacked down, and stitched in place on the right side, or merely hemmed down neatly, which is all that is necessary, on the wrong side. Seven or more tucks are done in the same way, but they are, of course, narrower. Ornamented fronts with tucks are worn for full dress.

It should be remembered that in Fig. 6, between E and D, the shoulders are sloped away, about an inch to the shoulder, and the neck scalloped out. The neck is cut in front an inch lower than the back, before the yoke is added. The shoulders are five inches long (allowing for turnings). This is an ordinary measurement, but of course individual conformations have their peculiarities.

Many shirts, instead of being gathered in at the waist, have a single pleat at the extremities of the waist each side (G to C, Fig. 6). It is more suitable to the square front (Fig. 9) than the rounded (Fig. 8).

Fancy and dress shirts are made in a variety of styles, such as minute slanting tucks, inserted between plain broad linen, which is pretty; or three tucks and spaces; narrow tucks and two frills are also admissible, or a plain front and one frill, or rows of embroidered insertion, or an embroidered front, or merely fine tucks.

Flannel shirts are made like white ones, double-breasted, and without tucks. Fig. 1 is a good pattern for flannel or linen, showing the double breast inserted, the collar, the hem, the front, and the wristband. Fancy cotton shirts are much worn and are cheap; they are made the same way. Mark shirts in ink, with the name in full, just below the band at the waist. Mark flannel shirts with ink, if you can; if not, with marking cotton; best in initials.

Fig. 11 is a design for a boy's shirt.

CHEESE AND CHEESE-MAKING.

II.

Varieties of Cheese are obtained according as the different proportions of cream are increased or diminished.* When it is made from cream alone, it is called a cream cheese; when the cream of the previous night's milking is added to the new milk of the morning, a very rich cheese is made, as Stilton; when new milk only is employed, the Cheddar is obtained; when an eighth or tenth of the cream is removed, the large Cheshires are made, which will not hold together if all the cream be left in. When the skimmed milk of the evening is added to the new milk of the morning, the mixed milk yields cheese like the single Gloucester. If the cream be once removed from the whole of the milk, it yields common skimmed milk cheese; if it be twice creamed, it gives cheeses like some of the poorer sorts made in Friesland; and if skimmed for three or four days in succession, it yields the hard horny cheese of Suffolk, locally known by the name of *Suffolk bang*, which often requires the axe to cut it, and is so hard that "pigs grunt at it, dogs bark at it, but neither of them dare eat it."

Bath Cheese.—To one gallon of new milk add two quarts of cold spring water, and rennet sufficient to turn it (not hard). Take it gently out with the skimming dish, and lay it in the vat until full. Put a weight upon it, and apply dry cloths for a day or two; when turned out on a plate, cover it with another plate, and turn occasionally. It will be ready for use in about a fortnight.

Cheshire Cheese.—In Cheshire the greatest pains are taken to extract every particle of whey. For this purpose the curd is repeatedly broken and mixed; the cheeses are next pressed and placed in wooden boxes, which have holes bored into them; through these holes sharp skewers are stuck into the cheese in every direction, so that no particle of whey can remain in the curd. The salt is intimately mixed with the curd, and not merely rubbed on the outside. When the curd is broken very small, it is left covered with a cloth an hour to settle. It is confidently stated that good Cheshire cheese, in richness of quality and purity of flavour, remains as near perfection as can be. The present plan of cheese manufacture in Cheshire was stated to the Agricultural Society in 1870 to be a combination of the two methods, the Cheshire and the Cheddar. In the process, scalded whey is used, and skewering entirely dispensed with, as also are rubbing and greasing during the time the cheese is ripening for market. No pressure is applied at the time of making, nor until about two days afterwards. When the curd is broken, the heat is increased to 180°, and the whey drained off; the curd is then ground and vatted, and the cheese is put into a moderately heated oven, where it remains till the following morning. It is then taken out and left in a moderately warm part of the press-house for twenty-four hours without being turned; here it is left for three or four days, and is then rubbed over with warm grease, put into calico cups and binders, and so continues until sent to market. Next to Cheshire rank Gloucestershire, Wiltshire, and Somersetshire for their cheese. In the latter country they have the proverb—

> "If you wid have a good cheese, and hav 'n old,
> You must turn 'n seven times before he is old."

Gloucester and Somersetshire Cheeses are similarly made, except that the curd is not so often broken, nor the cheese skewered, and a portion of the cream is generally abstracted to make butter. After the curd has been separated from the whey, and is broken fine, warm

water is poured over it to wash out any remaining whey, or perhaps to dissolve any portion of butter which may have separated before the rennet had coagulated the milk, for although cream adds to the richness of cheese, butter tends to make it rancid.

Double Gloucester Cheese.—Strain the milk immediately from the cows into a large tub; first put into it cake arnatto (one ounce to about a fifty-pound cheese), tying it up in muslin, and shaking it till the milk is sufficiently tinged to the colour you wish; then add enough rennet to coagulate or curdle it; let it stand till the curd is quite formed, when it may be cut or broken with a knife, and the whey taken out with a skimming-dish. Next, cut the curd into pieces an inch square put it in a cloth into a large wooden drainer with a cover, upon which place a half-hundredweight, so as to press the curd moderately, and set it before a good fire. In fifteen or twenty minutes take out the curd, cut it rather smaller, and press it as before. Then take it out again, and cut it as small as birds' meat into a tub, where it is to be salted. It is then put into a cloth of thin gauze, and placed in a chessel, or chess, set before a good fire for twelve or fifteen hours, with the weight on it, and then put into the press; take it out occasionally, and give dry cloths, till they come out quite dry, when it will be pressed enough.

Cheddar and *West Rennard* cheeses are the produce of Somersetshire. Some of the choice Cheddar dairies are, perhaps, unequalled for richness throughout the world. A rich Cheddar cheese contains more fat than the egg; it is too rich, therefore, to be used as an everyday diet by the generality of stomachs. It is partly for this that "bread and cheese" are almost invariably eaten together.

Stilton Cheese acquired its name from Stilton, in Huntingdonshire, where it was first publicly *sold;* but it is said to have been first made at Wymondham, near Melton Mowbray. At the Bell Inn, Stilton, it obtained such celebrity as to be sold by the landlord at half-a-crown a pound, and was called the English Parmesan. The process of making it was long kept as a secret. To the morning's new milk add the skimmed cream of the preceding evening's milking, with a proper quantity of rennet. When the curd has come, it should not be broken in the usual way, but should be taken off carefully, and placed in a sieve to drain gradually. As it drains, gently press the cheese till it becomes firm and dry, and when taken from the vat keep it till quite firm, and repeatedly brush it. Great care is required to keep the cheese sweet and good till fit for use; the time of keeping till quite ripe is from twelve to eighteen months. In order to eat a Stilton cheese in perfection, you must not only have one made of rich milk, but manage it well after it is made. To hasten the growth of green mould, several pieces of mouldy or over-ripe cheese are inserted into holes made for the purpose by a taster; wine or ale is then poured in. But the best Stiltons do not require this, for they are in perfection when the inside is soft and rich, like butter, without any appearance of mouldiness. In France, when a Stilton has become very dry, dealers wash it several times in soft water, and then lay it in a cloth moistened with wine or vinegar till it becomes soft and mellow, which it will inevitably do if it be a rich cheese. This simple method is generally practised in Switzerland, where cheeses are kept stored for many years, and if they were not very salt and dry they would soon be the prey of worms and mites. It is then put into a shape in the form of a cylinder, eight or nine inches in diameter. When it is sufficiently firm, a cloth or tape is wound round it to prevent its breaking, and it is set on a shelf. It is occasionally powdered with flour, and plunged into hot water. This hardens the outer coat, and favours the internal fermentation, which ripens it.

North Wiltshire Cheese, to be eaten in perfection, should have the top rind cut off quite flat, then take out a small cone from the centre, and fill the space with any strong *sweet* ale; as soon as the malt liquor is absorbed repeat the supply, taking care that the top lid of the cheese is closely fitted after it, and the cheese enveloped in sheet lead, and kept in a damp place. A fortnight or three weeks will be time enough to ripen the cheese thus treated. Grass land forms the greatest portion of North Wiltshire, and the cheese made there is justly celebrated. It is mostly bought up by factors at Chippenham, for the supply of London and other large towns. The dairy is managed in the best manner; and so much depends on this, that, with care, nearly as good cheese may be made from inferior pastures as from the best. In North Wiltshire, each cow of the large breed will give from three to four and a half hundredweight of cheese in the season, if she calves in proper time. The chief dairies are on the borders of Dorsetshire, whence comes the butter used in the towns, North Wiltshire producing little butter except whey butter, its chief produce being cheese.

Cottenham Cheese is the richest cream cheese, which well indicates the richness of the pastures in this part of Cambridgeshire, where the commons are so extensive that 1,500 cows are kept here.

Sage Cheese.—Bruise the tops of young red sage in a mortar, with some leaves of spinach, and squeeze the juice; mix it with the rennet in the milk, more or less, according to the desired colour or taste. When the curd is come break it gently, and put it in with the skimmer, till it is pressed two inches above the vat. Keep it eight or ten hours; salt it, and turn it daily. For nearly a thousand years the art of mixing herbs and cheese together has been known in England and France. In France this operation is called *persiller*, because a great deal of parsley is mixed with the cheese, as here we mix a great deal of sage. The herbs, &c., were worked into heraldic devices in the middle ages.

Common Cheese.—Half the milk should be fresh from the cow, or if cold it should be warmed, if too hot the cheese will be tough. Put in rennet enough to turn it, and cover it over. When turned, strike the curd down with the skimming-dish, and let it separate, still covering it. Then break the curd, gather it with the handle gently towards the sides of the tub, and fill it with curd by the skimmer, pressing it closely, and finally leaving it two inches above the edge. Before the vat is filled the cheese-cloth must be laid at the bottom, and when full drawn smooth over on all sides. It may either be salted while in the tub, after the whey is out, or when in the vat. Put a board beneath and above the vat, and place it in the press; in two hours turn it out, and put a fresh cheese-cloth; press it again for eight or nine hours; then salt it all over, turn it again in the vat, and let it stand in the press fourteen or sixteen hours, observing to put the cheese last made undermost. Before putting the cheese for the last time into the vat pare the edges, if they be not smooth. The vat should have holes on the sides and at the bottom, to let all the whey pass through.

French Cheeses.—The best cheeses in France are those of Neufchâtel, in Normandy; of Brie, which is much eaten in Paris; and, above all, Roquefort, manufactured in the village whose name it bears; it is the best of all dry cheeses, and is much finer than Stilton. Some of its excellence is due to the cellar in which the straining or refining of the cheese takes place, and some portion to the peculiar manner in which the animals are milked. Roquefort cheese is made of a mixture of sheep's and goat's milk; the first communicates consistence and quality, the latter whiteness and a peculiar flavour.

Neufchâtel Cheeses are made of cream thickened by heat, and pressed in a small mould. They undergo a rapid change, first becoming sour and then mellow, in which state they must be eaten. Our Bath cheeses undergo a similar change.

EASTER EGGS.

VERY pretty articles for presents can be made out of Easter eggs. In the northern counties of England the reciprocal giving of Easter eggs is a general custom and expressive of good-will, and everyone vies with the other to produce the prettiest. Get scraps of ribbon of all sorts, old and new—dark, bright colours are best. Wrap them round and round the eggs, and sew them up tight. Boil the eggs as many hours as you like, with or without a little alum added in the water. Take them out, and unroll them. Most of them will be dyed like the ribbons. They do not all succeed. Take an old strawberry basket and sew it all over thickly with moss, like a bird's nest. Or make a cardboard basket, and cover it with moss. Put three or more eggs of different colours in the nest. This is a pretty present; but single coloured eggs can be given.

Fig. 1.

An Easter egg forms a still prettier gift if you scratch on it landscapes, or comic figures, or kindly mottoes, executed neatly with a sharp penknife. We have seen many of these scratched eggs made beautiful works of art. Choose a brown, crimson, or violet egg for this purpose, or at least one rather dark in colour, as the device appears in white. Fig. 1 is a guide for a landscape. Another way of making Easter eggs is to boil them very hard; cut each egg in half; remove the meat. Gum on a piece of silk, satin, or ribbon, with the top drawn up previously like a bag, with a frill and strings, and put a strip of prettily-embossed gold paper over the join of the silk and the egg. Fill the egg-bag with sweetmeats, or any little present you wish to make—such as a ring or a thimble, laid at the top of sugar-plums. Eggs dyed may be cut in half, and then scratched prettily; the meat afterwards removed, and a bag added.

Fig 3.

Fig. 2 illustrates the egg-bag; Fig. 3 is a second design for a frill.

Or boil and cut off three-quarters of the egg in the way described; paint over the shell with white of egg. When that is dry, draw a garland, or device, or motto surrounded with flowers, using water-colours and a fine camel-hair or sable brush. If all the colours are well mixed with flake-white before using them, the effect will be superior. A very little gum should also be added in the mixing. Have a silk or satin bag ready to gum on when the drawing on the egg is quite dry. Those who are not skilled in drawing can ornament Easter eggs by means of garlands and small scraps of prints for décalcomanie.

Fig. 2.

Eggs may also be hard-boiled in dye, instead of with pieces of ribbon, only the ribbon brings out each egg a different colour, and by dyeing them the batch would be all alike. Of course only one coloured ribbon is used to one egg; although a ribbon in itself variegated often produces a beautiful egg, two coloured ribbons wrapped round an egg would be likely to create a confusion of colour.

Another way of making an Easter egg is to boil one very hard. Cut it in half lengthways; bind the edge of each half with gold paper; gum a ribbon across the hollow of each, leaving ends at both sides. Sew two ends together, in a bow, to make a hinge; fill the egg with sweetmeats, or some little gift, and, having closed it, tie the ribbon-ends.

TOILE INDIENNE CHINA.

A VERY good imitation of rare and expensive china may be produced in a simple and inexpensive manner by the following process:—To imitate large china vases, procure at one of the best colonial or Civil Service warehouses an empty grape jar, or one of any size or pattern preferred. When brought home, have the jar thoroughly cleansed; then, with good oil-colour, paint it, inside and out, the colour that the ground of the china is desired to be—black, white, pale sea-green, red, &c.; when thoroughly dry, varnish the paint with two or three coats of the best varnish, to bring it to a good gloss and substance, allowing each coat to dry previous to adding the others.

Purchase at a first-class upholsterer's some of the best and finest chintz, selecting colours and patterns suitable to the style of china to be copied; it will be best to get a small piece of several patterns, so as to mix them, the large with the small, but care must be taken that the same style of pattern is adhered to. A Chinese pattern must not be mixed with one suitable for French china, but Chinese flowers may be introduced among Chinese pagodas and landscapes.

Cut out the chintz with a fine pair of scissors, so as not to leave any of the groundwork of the material beyond the colours of the pattern; carefully gum the backs of the pieces cut out, and stick them on the jar, being careful that the edges of the chintz are perfectly fixed, and the whole of each piece flat; press them with a soft dry handkerchief, and do not allow any moisture to injure the glaze of the chintz. When the pattern is all arranged, the jar must be again varnished all over (the chintz also) with copal varnish, and left to dry in a room free from dust.

Before the last coat of varnish is added, the handles, top and lower rims of the jar, may be gilt with shell-gold, or painted a colour different to that of the jar. The gold can be purchased at an artist's colour-shop, either in the little mussel shells or saucers, and is applied with a moistened camel-hair pencil.

The chintz patterns may also be touched with gold previous to the varnishing for some china.

Flower-pots for the room, and any china or earthenware ornaments, may be treated in the same way.

If painted the colour of terra-cotta, coloured chintz or patterns cut out in black paper may be fixed to jars, &c., to give the appearance of Egyptian and Assyrian porcelain, but gold must not be added to these patterns. Similar designs to those given in the article "Etrusco-Egyptian Flower Pots," HOUSEHOLD GUIDE, vol. iii., page 189, will be useful for this purpose.

Square earthenware summer-house seats, and large outer garden pots, where chipped or worn, can be nicely renovated by this process.

Very large jars to fill the corners of the drawing-room, when thus treated, look very well, the full clear outlines of the patterns of the chintz having a stronger and more defined effect than that produced by décalcomanie.

If the jar is painted a blue-white, chintz of an entire blue pattern should be used, without gold, and it will be well to take notice of the jars that are to be imitated, so as to arrange the patterns as near to those of china as possible.

RIDING FOR LADIES.—II.

ONCE mounted, the lady turns in her saddle, her habit is straightened for her, and she proceeds to place her right leg over the pommel, and her left foot is put into the stirrup. She then arranges her habit by raising herself well up in the stirrup, which also enables her to ascertain that this stirrup is the right length and firmly adjusted, leaning forward the while and pulling the habit well down at the back, passing the hand between it and the saddle, making it also quite smooth beneath the right knee over the pommel.

All this requires confidence and practice, but some trouble should be taken to acquire the power of doing it easily, as in trotting, especially, the habit is apt to ride up, and a good horsewoman can readjust it without assistance.

The reins have now to be properly disposed of. This is not learnt in a moment, and it is advisable to master the difficulty off the horse, either with veritable reins or loops of ribbon of two colours, to distinguish snaffle from curb.

Begin by holding both reins perfectly taut in the right hand at the extreme end; the snaffle will be in the centre. Place the second finger of the left hand between the snaffle, the little finger between the curb; pass the hand down the reins, which are now equally divided by the fingers, resting flat and untwisted between them; close the hands, turning the ends of the reins over the knuckles, and hold them in their places with the thumb. The right hand is sufficiently occupied with the whip; the slightest turn of the left hand guides the horse, as the holder of reins quickly feels; she may, however, until she acquires more facility, have recourse to the right hand occasionally in guiding.

The manipulation of the reins is an important point to acquire, and should, indeed, be thoroughly mastered before leaving the riding-school and attempting road riding. It includes as a natural sequence the proper position to be assumed by the hands and arms. The elbow must on no account be hugged too closely to the side, though in time, when the independent action of the wrist has been secured, the shoulder may not ungracefully come into play, for there should be no appearance of rigidity in the figure at all, and this is apt to be produced by persistently holding the elbows to the side, while avoiding the error of thrusting them out. A slight exaggeration, however, in any right direction can always be subsequently rectified.

On no account must the hand yield involuntarily to the horse; the rider must establish her dominion surely and decidedly, or the results will be disastrous to herself and her steed, and while acquiring a light hand she must secure a firm one.

The bridle hand should be held at a moderate distance from the body, the inside of the hand nearest to the waist, the wrist slightly rounded.

To make the horse advance, slacken the rein, or, in other words, relax the hand by turning the thumb towards the body, and so ease the pressure on the little finger.

If, on the contrary, the rider wishes to make him halt, she draws the little finger towards the waist, and so tightens the rein. If she would have him go to the left, she turns the thumb to the right, the little finger pressing the rein towards the right shoulder; if the direction is to be to the right, the little finger moves to the left, which slackens the right rein.

These movements of the wrist and finger may advantageously be learnt off the horse, for if quite unaccustomed to handling the reins properly, the pupil is apt to become flurried at the novelty of her position when mounted, and to have a very indistinct idea of which is the curb and which is the snaffle. Moreover, if the horse have a light or tender mouth, and the action is too pronounced, the results are not altogether agreeable, for a light hand—that is, the perfection of a hand for riding—is one that acts almost imperceptibly.

If a horse pulls, and requires tightly holding in, he is in truth unfit for a lady's use. The moment the horse begins to pull against the rider, the hand and arm should become firm and unyielding, or the animal will have established the mastery.

Having learnt how to mount and how to hold the reins, the next point is to secure a perfect seat. For this purpose the rider must be exactly balanced, sitting true and square on the saddle, the right shoulder well back; the tendency to bring it forward is one of the commonest faults of beginners. The figure must be well drawn up from the waist, yet quite flexible, the right knee steady, the left heel well down. A common error to be avoided, is an inclination to the left side of the horse, as though seated too far over. The rider's every movement should be in unison with that of the horse, her position easy and safe, retaining throughout the most perfect command over her animal. Slovenly attitudes are never more clearly seen than when on horseback. The rider must carefully avoid bearing any weight on the stirrup, stooping, or inclining too much backwards. When she has acquired all this knowledge of what to do and what to avoid, she will have diminished many of the difficulties which beset a novice.

As a child must learn to walk before he can run, so the rider should not be allowed to canter or trot until she has become at home in the saddle, can guide her steed with confidence, and has grappled the difficulties of walking. This can be accomplished most satisfactorily in a riding-school; or, if there be none at hand, in a paddock.

First begin by walking the horse forward, having the reins well in hand, and recognising every movement of the horse's mouth He must be made to keep up a regular pace, and not go out of a walk. Should he become sluggish, he must be encouraged, or, technically speaking, "animated" by a slight motion of the body or hand. A little movement of the hand holding the reins will often accomplish it, or the use of the whip. Should he unduly quicken his pace, he should be checked by a quick motion of the reins.

Meanwhile the rider must take great care that her seat is perfect, that she is neither stooping nor leaning too much over the saddle, the right shoulder well back; in fact, her line of vision should be directly between the horse's ears.

The best test of all this will be when she advances to the next step in her tuition, and learns to turn her steed to the right and left, and run him back. In these movements she must "go with" the horse, bringing her right shoulder forward in turning to the left, her left shoulder in turning to the right, thus establishing her perfect balance. Any neglect on these points is likely to bring direful consequences, and taken in an unguarded moment, the chances are she may find herself deposited on *terra firma*.

Whether the rider understands her horse or not, there is no question that the animal knows exactly the extent of mastery she has over him, and is keenly alive to any advantage he may be in a position to take.

To turn to the left, then, she inclines the inner reins with her little finger towards her right shoulder, pressing the left leg against the side and bringing the right shoulder forward. To turn to the right she inclines the inner rein to the left, advancing the left shoulder and using the same pressure of the leg, correcting any inertness on the part of the horse by an application of the whip on the off side.

COOKERY.—LXVII.

FRENCH DISHES (*continued from p.*310).

Potage de Santé (*Strengthening Soup*).—This soup is prepared by stewing together two roast fowls, a knuckle of veal, and, if you happen to have any by you, some bones of roast beef, in about twenty ladlefuls of stock broth, prepared from beef. The contents of the stewpan must be slowly simmered down, until a fourth part is lost by evaporation; then, the liquor being carefully skimmed, add some pepper, and continue to stew it for five hours. The fat on the surface is now to be again skimmed off, and the meat taken out. The white of an egg, previously beaten up in some cold beef stock broth, is then to be added, and the soup again boiled for twenty minutes, the reason for adding the white of egg being to clarify the liquid. Then strain the broth, and pour it into a stewpan, and add one large carrot, a turnip, two heads of celery, and two leeks, with two young lettuces and some chives and sorrel. The turnip and carrot should be cut into strips, one-eighth of an inch thick and three-quarters of an inch wide, before placing them in the soup, while the celery and lettuces should be previously blanched in water. After the soup has boiled for an hour, add some sugar, and three tablespoonfuls of green asparagus points, previously blanched. It is then to be poured into a tureen, in which slices of crust of French roll have been previously arranged.

Potage au Chasseur (*Hunter's Soup*).—Three partridges are to be cooked between slices of bacon, and then allowed to become cold. Now remove the skin from them, and cut each limb into two pieces, and arrange them at the bottom of a tureen. Afterwards, take what is left of the partridges, and stew it in a sufficient quantity of the *potage de santé;* then skim and strain the soup, and pour it over the partridges in the tureen.

Potage à la Sévigné.—Cut a good-sized fowl into pieces, and stew it for an hour with some of the consommé prepared from poultry (see *consommé de débris de volaille*). The soup, after being skimmed, is to be strained and allowed to cool. It is then to be mixed with the yolks of eight eggs, and seasoned with pepper, nutmeg, and salt, and afterwards again strained. A number of small moulds, previously buttered, are then to be filled with this preparation, and exposed to a gentle heat (below that of boiling water), to render them solid, and when ready to be sent to table, put into a tureen full of hot *potage de santé.*

Grand Bouillon (*Common Beef Stock*).—Remove all the bones from a rump of beef, and tie the meat together with twine; then break the bones into pieces, and put them into a stewing vessel three-quarters full of cold water. The pan must then be placed in a warm situation, by the side of the fire. The heat is to be gradually increased, and the scum and fat on the surface of the liquor frequently removed. Some water must also be occasionally added during the time the cooking is going on, to replace that lost by evaporation. After some time, when nothing more rises to the surface except a little white scum, place the stewpan on a slow fire; add some salt and sufficient vegetables to season it in the usual way. A few cloves may also be added. The contents of the stewpan must now be kept continually simmering for four or five hours. For this reason it is best to begin to make this broth early in the day. When the meat is done, which may be learnt by passing a skewer into it, it is to be removed from the vessel, and the liquid strained. The meat is now to be put in a proper pan, furnished with a lid, and some fat and broth strained over it. Then the cover is put on the pan, and it is placed in a hot closet until half-an-hour before the beef is required for the table. The meat must now be taken out, carefully trimmed, and most of the broth and liquid removed from the vessel. Then, the beef being replaced, after having been covered with a coating of glaze (see *consommé blanc de volaille*), the pan is exposed to heat, to render the glaze solid. This process is to be repeated, and then the meat is to be sent to table. Sometimes, to improve the appearance of the meat, many coats of glaze are applied, but it tends to render the meat difficult to be cut.

Bouillon de Volaille (*Stock Broth prepared from Poultry*).—This light and nourishing broth is made by stewing two well-fed fowls, previously roasted and cut in pieces, in two quarts of water. The broth is then to be skimmed, and the following vegetables added:—one carrot, a turnip, an onion, a lettuce, two leeks, and half a head of celery. These vegetables must be cut into slices, and fried in butter, previously to introducing them into the broth. A clove or two and some salt are also required to be added. The contents of the vessel are then to be simmered for nearly three hours, the fat on its surface removed, and strained through a fine sieve. This stock broth is chiefly used for making other varieties of soup.

Bouillon de Perdrix (*Stock Broth from Partridges*).—This is a very restorative food for sick persons, and is thus prepared:—Four partridges are to be well roasted and put into a pan, together with a leg of veal from which the knuckle has been removed, and three quarts of water. The whole is then to be simmered for four hours, and skimmed. The vegetables directed to be used for *bouillon de volaille* must now be cut in pieces, cooked in butter over the fire, and added to it. The fat is then to be skimmed once more off the broth, and the contents of the stewpan to be strained through a fine sieve.

Bouillon de Lapereaux de Garenne (*Stock Broth from Wild Rabbits*).—This broth is employed in those soups for which the flavour of game is desirable. It is prepared by partially cooking in a stewpan two wild rabbits, cut into pieces, and one pound of veal. When they turn brown, add the vegetables directed for *bouillon de volaille*, then boil them together for three hours, and strain the broth.

Pièce d'Aloyau Bouillie (*Sirloin of Beef Stewed*).—Lift the flesh from the chine bone of a sirloin of beef, saw the bone across, trim the ribs neatly, remove the skin from the under fillet; afterwards cover it with suet, previously beaten out inside a cloth, and roll up the meat and tie it with string, as if preparing it for the spit. The small pieces of meat that have been cut off are to be laid at the bottom of the stewpan, the sirloin placed on them, and proceed in the manner directed for *grand bouillon*. The meat should simmer for three hours, and then be removed, and be glazed in the manner previously directed.

Consommé Blanc de Volaille (*White Concentrated Broth from Poultry*).—Place in a proper vessel two fat fowls (trussed), with a knuckle of veal, weighing about three pounds. Fill the vessel three-quarters full with good beef stock broth, and cause it to boil at a gentle heat. Then skim the broth, and put in two carrots, a turnip, an onion, a few leeks, and some celery, but do not add any salt, as the bouillon has been already salted. Boil the whole gently for five hours, then skim it, and remove the meat and vegetables. The broth should afterwards be strained through a fine sieve. This broth is very useful for white soups and in preparing other dishes. Glaze is made in the same way, except that in this case only a small quantity of beef stock should be used; the smaller the amount of liquor employed, the greater being the consistency of the glaze. Great care should be taken towards the end of the process, that the glaze may not be injured by the heat used in its preparation.

Consommé de Débris de Volaille (*Stock from the Trimmings of Fowls*).—This is made from the trimmings of fowls, and knuckles of veal, with seasoning, stewed down, skimmed, and strained in the usual manner. The consommé is very useful for clarifying sauces, and for moistening *entrées* of vegetables.

HOUSEHOLD DECORATIVE ART.—XLIV.

STUFFING AND PRESERVING BIRDS AND OTHER ANIMALS.

To the art of stuffing and preserving birds and animals much attention has, during recent years, been paid, and a much nearer approach to perfection than formerly is now attained in it. We propose laying the most improved methods of procedure before our readers, and believe that we shall render them a service by so doing. Many may wish to see stuffed animals in their houses, who do not care to spend money on such things; and to sportsmen, and persons fond of natural history who live in the country, a knowledge of this art is particularly valuable; it will afford amusement for evenings or wet days, and enable them to preserve many curious and beautiful animals which would otherwise be lost. We do not venture to say that by following our directions the amateur will at once be able to equal the effects of the professed taxidermist, but attention to them will ensure his success so far as the mere preservation of the specimen is concerned, and by practice and observation of nature he may achieve beauty and life-like appearance. What we have to say may also, perhaps, be useful to some of our readers who have neither time nor inclination to enter upon the more difficult and artistic operations of setting-up and mounting, and would yet wish to know the proper method of preserving a specimen till it can be handed over for that purpose to a professed naturalist. Such persons will find the information they require in these articles.

There are three principal methods of preserving animals. First, that in which the flesh is allowed to remain within the skin, it being saturated with antiseptics and hardened by drying; but to this method we wish only to allude for the purpose of warning our readers against it. Animals can never be thoroughly preserved in this manner, although for a time they may look well, the feathers, if it is a bird, will after a little while fall off, and the creature will present a mangy and disgusting appearance. Second, the method introduced by the eminent naturalist, Mr. Charles Waterton, in which the skin is stuffed and dried to the required position without the aid of wires. Although this process has been ably advocated, it is too difficult for ordinary employment. We shall, however, speak of this more fully hereafter. Third, the more ancient and usual plan of stuffing the skin and supporting it on wires, which method may be considered as uniting, so far as is possible, durability and simplicity, and which is therefore the one which we should recommend for practice.

Materials.—The necessary materials will consist of a selection of soft dry substances for stuffing (the coarser or finer to be used according to the size of the animal), such as hay, moss, tow, and cotton (various other substances may be used for this purpose, but in no case must any dried marine plant be employed, since the salt contained in it will inevitably attract moisture from the atmosphere, and sooner or later cause the destruction of the animal stuffed with it); iron and brass wire of various degrees of fineness, which must have been well annealed in order that it may bend freely (iron wire is sufficient for large animals, but fine brass wire is required for very small ones)—the kind of wire used by artificial flower-makers is one which will be found of value; cork (ordinary bottle-corks will suffice); thread, cotton of various sizes, and fine silk; also a variety of glass eyes, which are to be obtained of all sizes and colours, at prices varying from one penny to one shilling per dozen, for birds and smaller animals, and for large animals, such as the stag and the horse, at from one to five shillings per dozen. A substitute for glass eyes for small birds and animals may be made by moulding a lump of black sealing-wax on the head of a pin, and afterwards giving it a gloss by heating. This is, however, but an indifferent makeshift, and should only be resorted to in case of necessity.

Preservative Compounds (*Powders for Preserving the Skins of Birds and Quadrupeds*).—Take of white arsenic two drachms; corrosive sublimate, two drachms; powdered camphor, six drachms; nutgalls, one ounce; powdered capsicum, half an ounce; and sal ammoniac, half an ounce, and mix them well together. Or Dr. Richardson's receipt—viz., coarsely-powdered nutgalls, two ounces; burnt alum, one ounce; and powdered camphor, one ounce; well mixed. If, however, the latter composition is used in a hot climate, it will be necessary to add to it two drachms of either arsenic or oxymuriate of mercury. These powders are chiefly used for the skins of birds; for the skins of quadrupeds a solution is frequently more convenient, which is made as follows:—

Preservative Solution.—Corrosive sublimate, one drachm; spirits of camphor, six ounces; spirit of salt, two drachms. The corrosive sublimate must first be dissolved in the spirits of camphor, and the spirit of salt added afterwards. This solution is to be applied to the inner side of the skin with a brush before the stuffing.

Preservative Compound for the Skins of Fish and Reptiles.—Powdered oak-bark, four ounces; powdered burnt alum, three ounces; sublimate of sulphur, two ounces; oxymuriate of mercury, half an ounce; and powdered camphor, half an ounce. Mix them well, and dress the skin with the compound before stuffing.

Arsenical Soap. Chalk in powder, six ounces; camphor, five ounces; arsenic, two pounds; white soap, two pounds; salt of tartar, twelve ounces; and sugar in powder, twelve ounces. The soap must be cut in thin slices, and melted with water in an earthen vessel over a gentle fire, being stirred meanwhile with a wooden spatula. When it is dissolved, add the salt of tartar, chalk, and sugar; take them off the fire, add the arsenic, and well mix and work up the whole together. This compound should be put in a glazed earthen pot, and fastened down with a close stopper or bladder.

The whole of these compounds are, as the reader will observe, of a highly poisonous character; and it will be necessary that due caution should be observed with regard to them. The arsenical soap is especially dangerous, and gloves should be worn while it is being used, to prevent it getting under the nails or otherwise causing sores upon the hands.

Tools.—The tools used in stuffing animals are neither of a complex nor expensive character. If preferred, a set can be bought, fitted in a case, at the shops of the larger naturalists, for from ten to thirty shillings. The more necessary consist of two scalpels the one large, the other small—for skinning. For these a sharp knife may be made to serve as a substitute. Sharp-pointed scissors—one pair with one point longer than the other—will be useful; camel-hair brushes of various sizes; large and small forceps; straight and curved pieces of wire, made spoon-shaped at the ends, for taking out brains, &c.; "setting needles," for arranging feathers, &c., of which the larger may be made of cobblers' awls, and the smaller of common needles fixed to handles, and having their points curved; straight pieces of wire, which taper towards their points, fixed to handles, for thrusting down the legs of birds before introducing the leg-wires, and which may be made from needles of various sizes; other

pieces of wire, blunt, in handles, for stuffing the thinner parts, as the neck; a long piece of cane, also for stuffing with. The reader will see that most of these instruments may be made by himself from common, inexpensive materials. The animal-stuffer should also have a few tools which will likewise be useful for other purposes: such as a pair of callipers for measuring the dimensions of animals before skinning them; a small hammer, a file, bradawls of various sizes, large and small pliers, cutting-nippers (for wire), and a variety of needles of different sizes, especially glovers' needles, and those which have three-sided points, which are better than round-pointed ones for sewing up the skins of animals.

DOMESTIC MEDICINE.—XLVII.

HÆMORRHOIDS.

THIS is a rather common complaint, especially among those who follow sedentary or indoor occupations. It causes inconvenience, but can be considerably controlled by simple measures, and is therefore a proper subject for some statement in a system of Domestic Medicine.

The Symptoms are a matter of common experience. They consist for the most part in uneasy sensations about the lower part of the back and of the lower bowel. At this part there is generally a swelling, which is different, according as the piles are *external* or *internal*. In cases of *external* piles, the swelling is visible; it may be inflamed in appearance or not; it may be very painful and sore; it may throb and feel hot. When it is painful, it is most so while walking about, or while sitting down, so as to cause pressure upon the part.

There is generally a loss of blood, sometimes only a few drops, at other times to a considerable extent. This may go on for some time, either unnoticed or disregarded, until the symptoms of loss of blood make their appearance, such as paleness and puffiness of the face, shortness of breath, weakness, &c. &c. In addition to these, other general symptoms often co-exist with piles. Generally there is costiveness of the bowels, a furred tongue, and defective appetite. There may be even slight yellowness of the skin, or a sallow complexion. The irritation of piles not only causes pain in the immediate part, but weakness and aching of the back, and irritation of neighbouring parts. Though in most cases of piles there is costiveness, sometimes they are brought on by diarrhœa.

The nature of the complaint may be inferred from what we have said. It results from enlarged and sometimes inflamed veins. These veins correspond and are connected with the veins which return the blood from the bowels and the liver, and whatever loads these veins tends to produce piles. External piles are covered with loose skin, and often consist more of skin than veins. When they become inflamed and painful, the veins of which they partly consist generally contain a little detained or clotted blood.

Causes.—Everything which tends to load the bowels and stomach tends to cause piles, either by pressing directly on the veins, or by overloading the system with food, and therefore with blood. Certain kinds of food are especially apt to cause piles, or make them worse—heating articles of food, such as the stronger wines, and beer, and too much animal food. This inconvenient complaint is still more likely to arise if, in addition to too much food, there is insufficient exercise—if life is too comfortable, indoor, and inactive. Exercise and open air keep away many ailments. The bad effect of indoor and inactive life is exaggerated by too much comfort, warm seats, feather beds, and carriages. The complaint is a common inconvenience to literary men, to all of indoor and sedentary pursuits, and people who have too much comfort and too little muscular work in their life.

Treatment.—The treatment of the severer degrees of this disease must be committed to the *surgeon*. If there is an habitual discharge of blood, and this produces any sensible effect on the strength or the colour, the case is clearly one for advice. But for the lesser degrees of the complaint very much may be done by the patient. The regulation of habits is most necessary; sedentary and indolent people must make up their minds to more exercise and activity. Walking or riding every day is essential to health, for indoor exercise is insufficient. The regulation of diet is indispensable; beer, port, and sherry wines, and, for the most part, spirits, must be abstained from. Claret or the light wines are not so objectionable. A draught of cold water first thing in the morning is to be recommended; and occasionally, before breakfast, half a tumblerful of Fredericksh all water, with as much hot water, should be taken as a laxative. The diet should be simple and varied; there should be a good admixture of green vegetables in it, and not too much strong animal food. Fish for dinner once or twice a week will do good. It is very important that the bowels should act with regularity. The regulation of diet will perhaps secure this; but if it does not, the Fredrickshall water, or the following laxative, should be taken:—Sulphur, sublimed, one scruple; carbonate of magnesia, one scruple; bi-carbonate of soda, five grains; powdered ginger, two grains. Mix. To be taken in the morning in a little milk, once or twice a week.

Where diarrhœa exists, of course this treatment is unsuitable, and it must be rectified. If the parts are sore or inflamed, or painful, they should be bathed three or four times a day with poppy fomentation, made by boiling two or three poppy-heads in a pint of water. But in ordinary cases nothing is better than bathing the parts with cold water every morning.

In fine, this is a complaint that people need seldom trouble doctors about, if they live wisely and well. Of course, we speak in general, and of the milder forms of the disease, unaccompanied by other ailments.

HOUSEHOLD AMUSEMENTS.—XXXII.

COMICAL PORTRAITS.

A CAPITAL evening game may be made by the assistance of a collection of any of the newspapers which furnish portraits of celebrities of a uniform size. Cut out all the portraits, and leave a handsome margin. Paste them separately on cards, and press them till dry. Afterwards colour them according to fancy. They must be pressed till dry again. A dish or pile of books is sufficient weight. Now proceed to cut them in three pieces, across the face, dividing them all at the same places. Number them on the backs, so that each portrait can be reunited at will. By moving a piece at a time, the widow's cap of a lady may surmount the head and beard of an officer, a judge's wig or a pair of moustaches adorn a lovely girl, &c.

A similar game may be made by anyone who can draw a little. Copy or trace a number of heads of all kinds, grave and grotesque; colour them; cut out the eyes, noses, and mouths. Then draw on fresh paper a number of featureless faces, colouring the flesh, hair, and eyes like those from whence you have taken the features. Thin card is best. Put the eyes in one bag, the noses in another, and the mouths in a third. Deal them to the party, and let each make up the faces to fancy, placing the features in the blank countenances. Each face should be quite as large as a sheet of note-paper, each eye about an inch long.

This game is one of a class which amuses from the incongruities produced, and, appealing to the taste for caricature so general among young folks, never fails to excite considerable laughter.

WORK-BOX FURNITURE.

By following the directions given below, some very pretty sets of miniature furniture may be made, every article of which is of some use in connection with the work-box.

A Pair of Pole-screens.—A sheet of fine Bristol board is necessary to make these ornaments, and either some skill in drawing flowers is required, or a few of the German raised scraps and wreaths used for valentines may be purchased. Those coloured by hand are, of course, greatly superior.

Cut four squares of the cardboard and take off the corners; they must all be exactly alike, and according to Fig. 1. Put a well-finished group of flowers on two of them. A little plain bright gold paper is needed. Rule a narrow strip off the paper with pencil and ruler (on the wrong side), and then cut it carefully; every part must be extremely exact to ensure success. Gum the gold paper, and bind the edges of all four cards. A clean, soft white handkerchief is needed to assist this process. Do not put too much gum on the paper, or it will damage the cards. Gum some turquoise ribbon from A to B of Fig. 1—of course, on the wrong side—and join to it one of the plain cards of the same shape, so as to make a needle-book. Lay these pieces between clean paper and press in a book; the other two cards are similarly united. Next evening fit each with a flannel or cashmere needle-book, stocked with needles. Either carefully notch the flannel or overcast it neatly with blue filoselle. The needles should be well put in.

Next cut four cards the shape of Fig. 2; upon two of them put wreaths of flowers, and bind the edges with gold paper. Cut four more cards a little smaller; bind these with blue ribbon, and then sew them together with a narrow ribbon to make a pincushion; the ribbon should be the narrowest blue sarcenet that is sold (not Chinese). Fill the pincushion, but not so full as to prevent the card setting quite flat. Gum the other cards on, one each side.

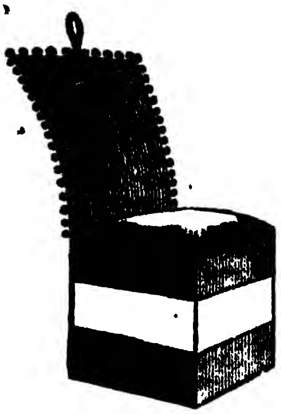


Fig. 8.

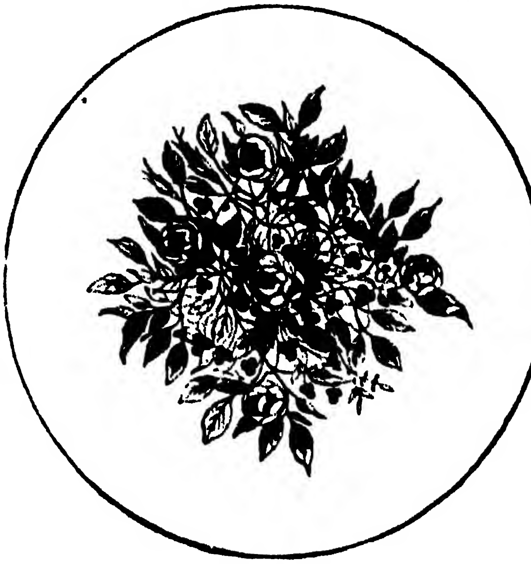
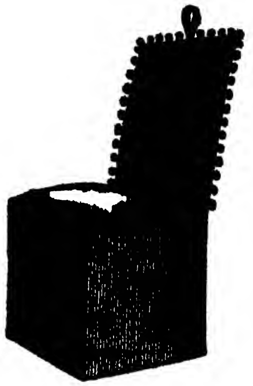


Fig. 4.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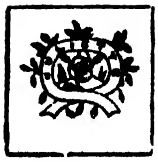


Fig. 11.

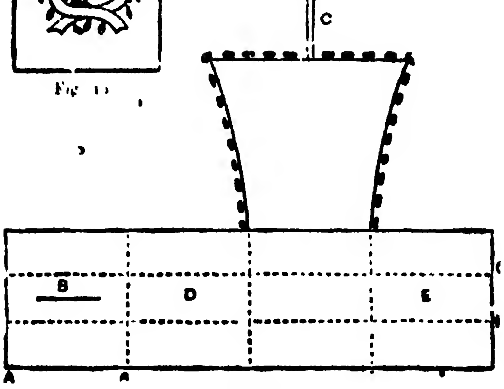


Fig. 6.

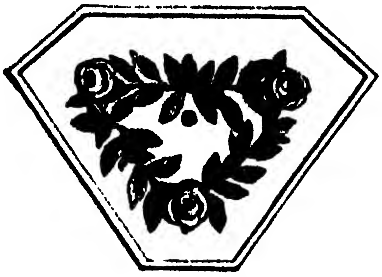


Fig. 2.

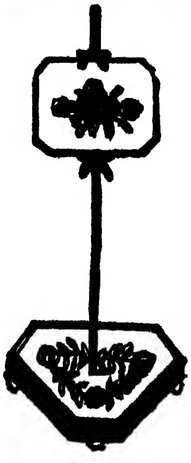


Fig. 3.

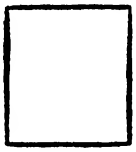


Fig. 7.


Fig. 5.

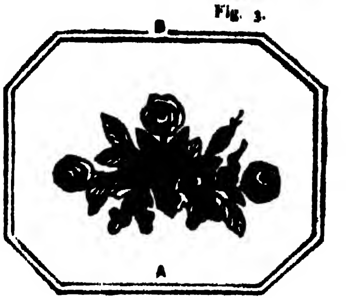


Fig. 1.

Take a short knitting-needle, make a hole through the entire pincushion, and put it through; fix it with sealing-wax on the wrong side. Twist some blue Chinese ribbon round the needle, fixing the ends with gum. Fix the needle-book and knitting-needle by the plain side, leaving the painted one to open. Fig. 3 shows the appearance of the screen finished. Fix with sealing-wax three China shirt-buttons as feet.

Chairs.—To make the first chair, cut out of card a piece the shape of Fig. 6, half cutting through the dotted lines at A, A, A, A on the other side; cover both sides completely with satin, first cutting the slit seen at B. Leave a space in the sewing at the edge at C, only just large enough to admit a bodkin, which may be seen there. Now bend the card round, so as to form a base for the lower part of the chair, and sew it together; bend the places where they turn, to keep a good square. Cut two squares like Fig. 7; cover one side with satin; sew it in to form the bottom. Make the other with a pincushion at the top. Before putting this on, take a pin just long enough to go right through the chair from end to end, passing through the side D and E, running the pin in and out through the end of a yard measure, which you may make yourself of the blue ribbon, such as was used for the pincushion of the pole-screens and table, drawing the inches with a camel-hair pencil full of lamp-black, very dry, and mixed with a little gum. Before running the pin through the ribbon, put it through the side of the chair, E, in Fig. 6, slip the ribbon through the slit B, and put the point of the pin through the side, D; secure it on the outside by making a head of sealing-wax on the point. The other end of the yard measure should also have a pin run in it, just long enough for the purpose, and a sealing-wax head made at the other end; then wind the ribbon closely once round the pin and sew it neatly. Now sew on the cushion top of the chair. It is scarcely necessary to observe, that of course the slit in the card has also been cut open through the satin at B.

To make the other chair, cut out from Fig. 6 to the dotted line, F to G only; cover this with satin as before. Cut out Fig. 7, make a pincushion top, and sew it on; cut a second 7, cover one side with satin, and set it to the bottom. Cut the lower part of Fig. 6, from the dotted line H to I, to the line where the four A's are; cover this also with satin, outside only. Cut two squares like Fig. 7, and cover one side of each with satin. Having sewn the last piece together, H to I, sew the squares on top and bottom, satin outside; then cut a square of white wax,

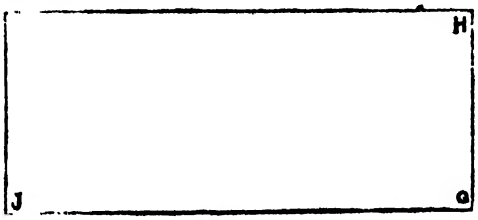


Fig. 13.

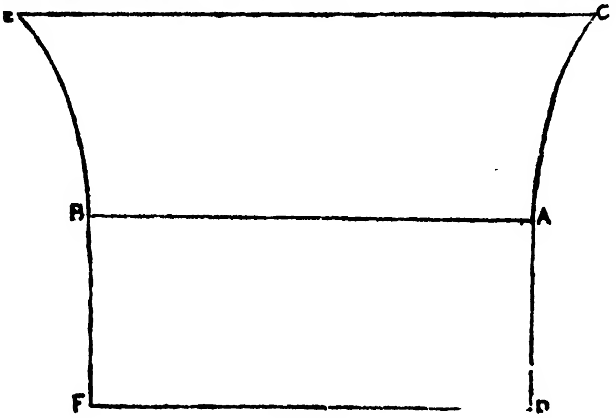


Fig. 11.

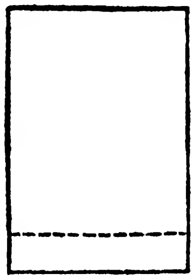


Fig. 14.

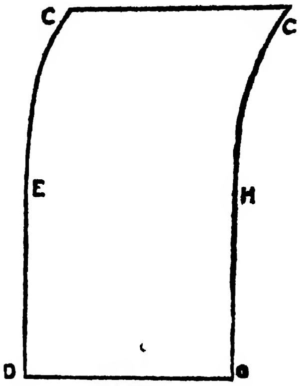


Fig. 12.

the size of Fig. 7, and the depth of the piece between the dotted lines, D and E, in Fig. 6. The chair is to be put together as shown in Fig. 8, with the wax in the centre. To keep it together, use a pin, not too long, leaving the head under the bottom of the chair, and losing the point in the cushion at the top. If the wax is warmed both sides alternately, it will also adhere well to the satin, which will be an additional security. Fig. 9 illustrates the first chair. Both chairs are furnished with bodkins and pins all round the edges of the backs. Fig. 8 shows the first chair made up.

The Loo Table.—Cut two circles of cardboard, by the help of the bow-pencil, like Fig. 4. Draw a group of flowers in one, and bind both with gold paper (see Fig. 4). Make them up into a needle-book for large-sized darning, tapestry, or small crochet needles. Cut a stand for the table like Fig. 2, of the pole-screens, and make it up the same way, with feet and a pincushion. A bodkin makes the stem of the table. Make a table of cardboard, a little longer than the bodkin. Before making up the stand, shown in Fig. 2, cut a hole in the centre the size of the tube, round which blue ribbon has been wound or a wreath drawn; insert the lower end of the tube, notch the end, all round, and gum the notches and turn them down inside on the card that is to form the top of the pincushion (Fig. 2).

In the lower leaf of the needle-book that forms the round top, cut a hole in the centre, a little larger than the size of the top of the tube. Join a ring of card very neatly, and insert it in this hole, or use the rim of a pill-box for the purpose. It should fit tight, so as not to come out when used as a lid to the tube which holds the bodkin, or a crochet handle for the crochet needles in the top. Fig. 5 represents the table completed.

The Stool.—Cut two pieces like Fig. 10. Draw in water-colours upon the upper one, and make them into a pincushion by binding the edges with ribbon, sewing four beads as legs on the under square, and then sewing the two squares together with a narrow blue ribbon between. The pincushion can be filled with wadding and scent, or entirely with scent. Or make the pincushion separate, of calico or a morsel of silk, with the four sides of blue ribbon. Bind the two squares of card with gold paper and gum them on the pincushion.

The Sofa.—Cut Fig. 11 out of cardboard, and cut out two pieces of turquoise-blue satin the same shape, but a little larger. If the piece-bag does not furnish suitable material, a little rich satin or sarcenet ribbon wide enough can be

bought for a moderate outlay. Tack one piece over the sofa by threads across and across the wrong side. Tack the other piece over the wrong side nearly to the edge, leaving room to turn in the satin. This may be tacked again. Then sew it all round very finely indeed with blue silk, leaving a space from A to B, to insert a bodkin. Next cut two pieces of card like Fig. 12, and reverse them. Cover both with blue satin as the sofa-back was covered. Then cut Fig. 13 an exact oblong in card, and also cover it with satin. Now sew the two pieces like Fig. 12 to Fig. 11, one each side, reversing them, from C to D and E to F. The sofa next wants a piece across the front, which is supplied by Fig. 13, sewn at H to G to Fig. 12. Now cut two pieces of satin like Fig. 14, allowing enough to turn in every side but where the dotted line comes. Make these into bolsters, leaving open the end with the dotted line. Stuff them firmly with emery, and run round the satin at the dotted line, and draw it up. Next stitch the cushions to the sofa sides, above where the seat will come, and at the place they usually occupy in a real piece of furniture. Lastly, cut a piece of cardboard double, like Fig. 13, the fold to occur from G to J. Open this, cover it as before with satin, and fix a flannel for needles by a ribbon inside. Stick the top and sides of the sofa with small pins. This article, when neatly made, looks very pretty.

THE HOUSEHOLD MECHANIC.—XLVI.

OVENS (*continued from p. 325*).

THE situation of the furnace may be seen, marked A, on the diagram (Fig. 4); on which diagram the situation of the oven is at B. The ash-pit is marked by the letter D. By comparing the diagram (Fig. 4) and the ground plan (Fig. 6), it will be seen that the oven may be heated either by means of chambers of heated air situated beneath the oven, as shown in Fig. 4, or by means of a large chamber of heated air situated between two ovens, as represented by Fig. 6. The letters C, C, C, C indicate chambers situated beneath the oven, from which the heated air is distributed under its whole surface by means of pipes, resulting in a grand system of apertures beneath the whole sole of the oven, exhibited by Fig. 3. The diagram (Fig. 6) exhibits the plan of a grand hot-air chamber, marked D, and situated between the two ovens or parts of the oven, which chamber is common to both for the purpose of heating them. Whichever system be adopted—whether the hot-air chamber be situated below or in the midst of the oven—it is necessary that the air be heated beneath. It is to be remarked that it is always the same air (heated) which is employed for heating these ovens. When rendered damp by the steam from the bread in the oven, it is pressed back into the hot-air chamber, by means of an outlet aperture, constructed for the purpose, near the mouth of the oven, where it is re-heated and mixed with the other hot air, and remains for future use, to be passed back again by degrees through the inlet apertures into the oven. So soon as the coke or wood used in the furnace is lighted, the aperture by which the air enters, which feeds the fire, is most securely closed, and the fire then continues to be fed by the air only, which finds its way through the crevices of the hearth, whose pores are distended by its high temperature.

The roof of the furnace is arched, and the flame and heated vapour pass from it into flues immediately above the hot-air chambers, and are circulated by a system of flues represented by Fig. 2 and H, H (Fig. 4); which system of flues circulates just under the space I (Fig. 4), where the hot air circulates.

The purpose of using the smoke and vapour before passing away into the chimney is to raise the hot air to as high a degree of temperature as possible before being admitted into the oven. On Fig. 5 will be seen the passage of the flue, marked A, which conducts the smoke and heated vapour from the furnace, into the system of flues, represented by Fig. 2, before passing away into the chimney marked G on diagram (Fig. 4).

Fig. 1 is a ground plan of the oven, and shows the two apertures, marked O, O, by which the heated air enters it. These apertures conduct the air directly from the space I (Fig. 4) into the oven, whilst another aperture, marked P, situated at the back or head of the oven, allows the hot air to enter, which has first passed about the smoke-flues, in order to acquire a greater degree of heat. The sole or bed of the oven is sometimes heated in the first instance, if quite cold, by burning some dry wood upon it, as is done in the common oven; but when once heated the temperature continues to be kept up by means of the heated air. We believe this plan of burning wood on the sole of the oven, for the purpose of first heating it, is seldom adopted, and especially for the reason that to these ovens there seldom occurs a chance of growing cold. It will be perceived, with regard to the manner of heating this kind of oven, that the air first receives its heat in the hot-air chambers, and thence passes into the space I (Fig. 4), situated just beneath the floor of the oven, where it receives an additional degree of heat from the system of smoke-flues placed just beneath. By regarding Fig. 4, may be traced the passage of the smoke from the furnace A, through the spaces marked H on either side of the figure, and thence into the chimney marked G. The air which enters the oven necessarily becomes charged with moisture from the bread, and requires to be frequently dried. It is passed back by means of a passage, marked N on Figs. 1, 2, and 3, into the hot-air chamber or reservoir; there to be dried and again passed into the oven—it being always (as before stated) the same air by which the baking is effected. Over the oven is placed a hot stove or chamber, marked C, C (Fig. 5), used for the purpose of placing the dough in, to rise. Over the front of the oven is a boiler, which fills itself by the system of the floating ball, and is always supplied with water, ready for kneading, when required. This boiler is marked B on the same diagram. D, Fig. 4, represents the ash-hole, into which the ashes fall from the furnace.

In Fig. 6, which is the ground plan of a bakehouse, the letters A, A indicate the baking ovens; D represents a space common to both ovens, in which air which has been heated by the furnace is contained for the purpose of keeping the ovens at the proper temperature; B is the apparatus for kneading the bread; C marks the department allotted for the raising of the bread into a store-room by means of machinery; and E points out the situation of the wheel employed to work the machinery for kneading the dough.

Two burners of gas (one on each side of the door of the oven) are fixed for the purpose of enabling the attendant to put in and draw out the loaves. These burners are fitted upon jointed arms, which allow their introduction into the interior, and can be easily moved so as to illumine all parts of the sole of the oven in succession. When the oven is charged the gas is withdrawn and the door shut. The damper is thrust in to prevent the dough being too much heated, but as soon as the temperature is brought down 18° Fahr.; viz., from 572° to 554° Fahr., the damper is opened so as to raise the temperature to what it was at first, by permitting the circulation of the heated air from the cavities below the floor of the oven. The *pains fendus*, or one-kilogramme loaves, whilst dough, are placed on a cloth, of which one fold is brought up between every two loaves, the cloth being first stretched on a board. Loaded with from ten to fifteen loaves, this cloth is carried on a frame, or bars of wood, and placed in front of the oven. When these dough loaves have become sufficiently raised (which easily

takes place, by reason of the mild temperature of the bakehouse), they are set into the oven. This operation is performed by means of placing each loaf successively on a peel, slightly powdered with flour, or flour and bran mixed. The loaves are deposited on the floor of the oven as closely as possible to each other, but without touching. When the bread is baked the gas-burners are again introduced into the oven, and the clearing or taking out is proceeded with.

If the temperature has been sustained at about 572° too high, a burnt crust is almost immediately formed, while the heart of the mass is little better than raw dough; and when this hard crust is once formed, the remainder of the loaf frequently remains little different from dough during the whole time the bread is allowed to remain in the oven. The reason of this is, that the carbonaceous covering of the loaf is a bad conductor of heat, and therefore the heat is prevented from penetrating the mass. On the contrary, when the temperature is moderate the heat is transmitted to the interiors of the

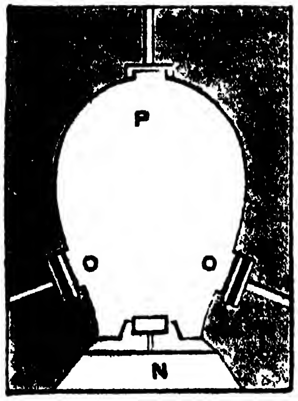


Fig. 1.

Fig. 2.

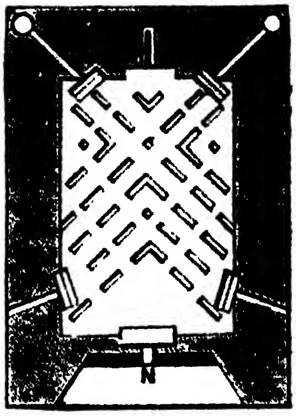


Fig. 3.

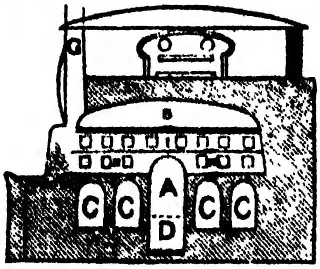


Fig. 4.

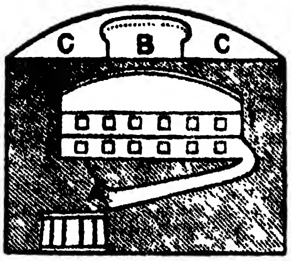


Fig. 5.

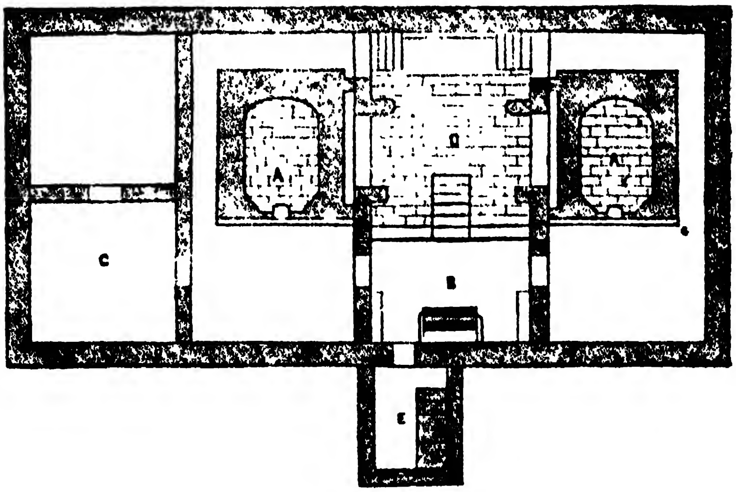


Fig. 6.

Fahr.—which is easily managed by inspecting the exterior tube of a thermometer fixed with its bulb in the interior of the oven—three hundred one-kilogramme loaves may be baked in twenty-seven minutes. The charging of the oven and clearing require about ten minutes each, therefore the whole time required for completing the baking of a batch would be, in all, forty-seven minutes. If allowance be made for accidental delays, and the somewhat longer time required for the baking of larger-sized loaves, it may be taken for granted that one hour is amply sufficient for the baking of each batch or ovenful. Great attention should be bestowed to see that the temperature of the oven is as it should be. It is often allowed to be far greater than is requisite, particularly in the smaller ovens, and hence the bread often acquires a burnt crust, very disagreeable to the taste. If the temperature at the introduction of the dough be loaves before the exteriors become carbonised. It is also requisite that the heart of every loaf should be maintained at a temperature of 212° Fahr., to render the starch soluble. The starch, gluten, albumen, and other parts of the flour are more intimately blended by this application, and the water by which they are dissolved is retained in the solid parts. The excess of water is evolved, and the carbonic acid and spirit are expanded, so as to cause the increase of the loaf, and confer the piled texture which causes French bread to be so highly esteemed. Much of the difference to be observed in bread is attributable to the difference in the temperature, especially when such bread is baked in the ordinary ovens, heated by fuel strewed upon the bed or floor of the oven. In the first place, difference arises from the manner in which such ovens are heated, the heat by such means being never uniformly diffused; and secondly, because ovens, so

heated, are incapable of preserving uniformity of temperature, which is absolutely essential for the purpose of baking bread well. For, suppose the heat to have been equally distributed at the time of clearing out the fuel, the foremost part of the oven will necessarily become considerably cooled during this process and while the bread is being introduced, and it is in this part, being last filled, that the loaves have the shortest time to remain; hence the only means is to change places in the oven—that is, to pass the loaves from the front of the oven to the top, or end which is most highly heated. Without this shifting of the loaves, which occupies considerable time and trouble, it is evident that the loaves at the end will suffer from the effects of the high temperature, while those at the mouth will be only imperfectly baked.

If the heart of the loaf has not attained a temperature of 212° Fahr., during a period sufficiently great to effect the dissolution of the starch corpuscules and blend them with the other constituents of the flour, the bread will be heavy, dense, and doughy, difficult to be digested, and loaded with extraneous moisture—qualities highly prejudicial. Bread may be baked at a temperature not exceeding 212° Fahr., but, then, that most necessary part, the crust, will be wanting; besides, the *piled* structure is not so perfect as when baked in ovens raised to a higher degree of temperature. As regards the solution of the starch, and its intimate incorporation with the albumen, gluten, and other components of the flour, it is just the same as when the dough has been submitted to a higher temperature, for in the latter case the heat acquired by the central part of the loaf is not *greater* than 212° Fahr.—a fact easily demonstrable by cutting a loaf open and burying in it the bulb of a thermometer, the mercury in which will be found not to rise above 212° Fahr.

The temperature of the interior of the kind of ovens we have been describing is—according to the principle on which they are constructed—equal, and their temperature is registered by means of a thermometer, and whenever the temperature exceeds 554° to 572° Fahr., dampers are employed to shut off the draught until the temperature does not exceed 280° Fahr., when they are again adjusted to keep the heat uniform, and thus it is that an even temperature is maintained. The lowest temperature which will efficiently bake bread is from 320° to 400° Fahr. The temperature of the hot-air oven (as has been seen) far exceeds this, but the kind of bread and size of loaves is different. The temperature of 554° to 572° Fahr. would not do for the baking of eight-pound loaves, as such loaves require a greater time at a less degree of temperature.

We believe that everything necessary has been here stated, in describing the hot-air oven, to enable the baker of whatever country to bake bread to the same perfection as it is baked in Paris.

HOUSEHOLD DECORATIVE ART.—XLV.

STUFFING AND PRESERVING BIRDS AND OTHER ANIMALS (*continued from p. 336*).

Stuffing and Setting up Birds.—Supposing that the bird has been skinned, the skin dressed with the preserving compound, and the head stuffed as already directed, a piece of wire must be taken, proportioned in thickness to the size of the bird, and somewhat longer than the bird, measured from head to rump. This wire must be doubled back like the head of a skewer at one end, and pointed at the other, and must be thrust through a cork, which must be pushed down to the doubled end; this will form the "body-wire," and will represent the vertebral column in the artificial bird; the cork making the nucleus of its body, and a means of articulating the other wires with the body-wire. The body-wire will have its looped end resting against that piece of the rump-bone which remains in the skin, and its pointed end thrust through the skull, and brought out at the top of the head; but before being placed within the skin, tow, moss, or other stuffing must be wound round it, to bring it, as nearly as possible, to the size of the body of the bird, and secured in its place by winding cotton over it. Finer wires must be pointed and thrust upwards from the feet through the legs, and their upper ends passed through the artificial body and clenched on the opposite side; the wire must be long enough to leave two or three inches of its lower end projecting from the feet, as a means by which to secure the bird to its perch, or board. Another piece of wire, pointed at both ends and bent like a hair-pin, has also to be passed through that portion of the rump bone which remains in the skin, and thrust into the body-cork. This serves to support the tail. If the wings are to be stretched out, other wires must be passed through them, and into the body-cork, in the same manner as the leg-wires. By bending these wires the body can be made to assume any position. After the leg-wires, tail-wire, &c., have been fastened into the body, all the additional stuffing which is necessary to complete the shape of the bird must be added, and the skin sewn up. The bird may now be made to stand, by boring holes at the proper distance apart for the width of the legs, in the branch of a tree if the bird be a percher, or in a flat piece of board if otherwise, and securing them. The eyes may be fixed in with a little putty, and the eyelids slightly drawn together over them, with a fine needle and cotton, at their hinder extremities; and the beak secured either open or closed, as it is intended to be shown. If the large feathers of the wings and tail are to be spread out, they must be arranged and secured by slips of cork or cardboard placed on both sides of them, and fastened by pins thrust through them. All the feathers, and more especially those over the line down which the opening has been made, will now require to be nicely arranged in their natural positions, by the aid of the setting-needles and camel-hair brushes, and secured in their places by winding the whole body over with fine cotton. The bird has now to be dried, which should be done at a tolerably warm fire, but not so hot as to singe the feathers. By this drying both the general position of the bird and the arrangement of the feathers will be fixed and rendered permanent.

Another method, which is useful for large birds, is first to stuff the skin, then to pass leg-wires up the legs and into the head, and to use a much longer tail-wire, in order that it may pass nearly through the body. Whichever method is practised, the superfluous wire must finally be neatly cut off.

Mr. Waterton's method of setting up birds without wires we shall give in his own words:—"Wire is no manner of use, but, on the contrary, a great nuisance, for where it is introduced a disagreeable stiffness and derangement of symmetry follow. The head and neck can be placed in any attitude, the body supported, the wings closed, extended, or elevated, the tail depressed, raised, or expanded, the thighs set horizontal or oblique, without any aid from wire. Cotton will effect all this. A very small proportion of the skull-bone, say from the fore part of the eyes to the bill, is to be left in, though even this is not absolutely necessary. Part of the wing-bones, the jaw-bones, and half of the thigh-bones, remain; everything else—flesh, fat, eyes, bones, brains, and tendons—is to be taken away. Introduce the cotton for an artificial body by means of a little stick like a knitting-needle, and without any other aid or substance than that of this little stick and cotton, your own genius must produce those swellings and cavities, that just proportion, that elegance and harmony of the whole, so much admired in animated nature and so little attended to in

preserving specimens. After you have introduced the cotton, sew up the orifice you made in the belly, beginning at the vent, and from time to time, till you arrive at the last stitch, keep adding a little cotton, in order that there may be no deficiency there. Lastly, dip your stick into the solution, and put it down the throat three or four times, in order that every part may receive it. When the head and neck are filled with cotton quite to your liking, close the bill, as in nature. A little bit of beeswax at the point of it will keep the mandibles in their proper places. A needle must be stuck into the lower mandible, perpendicularly. You will shortly see the use of it. Bring also the feet together by a pin, and then run up a thread through the knees, by which you may draw them to each other as near as you judge proper. Nothing now remains but to add the eye. With your little stick make a hollow in the cotton within the orbit, and introduce the glass eyes into it. Adjust the orbit to them, as in nature, and that requires no other fastener. Great attention must be paid to the size of the orbit, which will receive within it an object much larger than the eye, so that it must be drawn together with a very small, delicate needle and thread, at the part farthest from the beak. A small quantity of the solution is now applied to the bill, orbits, and feet. Take any ordinary box large enough for holding the bird, and fill three-fourths of it from the top, at one end, forming an inclined plane. Make a hollow in it sufficient for the reception of the bird; place it in the box with its legs in a sitting posture; take a piece of cork, into which three pins have been stuck for legs, like a three-footed stool, place it under the bill of the bird, and the needle, which was formerly run through the bill, is stuck into the cork, which will act as a support to the bird's head. If the neck is wished to be lengthened, put more cotton under the cork (or *vice versâ*); and if the head is wished to be projecting forward, it is only to be brought nearer the front of the box, humouring the cork so as to place it in the position you require. As the back part of the neck shrinks more in drying than the front part, a thread must be tied to the end of the box and fastened to the beak, to prevent the face from looking too much upwards. If the wings are wished to be elevated, support them with cotton, and if to be very tight, place a piece of stick under them. Should you wish to expand the wings, the order of the feathers must be reversed, commencing with the two middle ones. When perfectly dry, place them in the natural order, and they will ever afterwards continue as you wish them. If the crest is wished to be erect, the feathers must be mixed in contrary directions for a day or two, when they will soon take the positions wished for. The box must be placed out of reach of the sun, air, or fire, so that the skin may dry slowly. The corrosive sublimate is of much use in this respect, for it renders the skin moist and flexible for many days. The bird should be lifted every day, so that any faults may be corrected which take place while drying. The small wing-covers are apt to rise, owing to the skin coming in contact with the wing-bones. The part which rises should be pulled gently with the finger and thumb for a day or two, and the feathers pressed down. The feathers should be frequently adjusted, so as to render them distinct and visible. The legs begin to stiffen in three or four days."

If, however, instead of a fresh skin, one which has previously been dried has to be set up, it will first be necessary to soften and relax it by damping. The skins of small birds, such as humming-birds, &c., will merely require to be wrapped in a damp cloth for a few hours; those of larger birds should have the cavities of the eyes and mouth filled with damp cotton; damp bandages should be put round the legs, and the skin wrapped in a damp cloth. The feathers may be protected during the damping by an inner wrapper of wash-leather.

COOKERY.—LXVIII.

FRENCH DISHES (*continued from p.* 335).

Potage à la Semoule au Lait (*Semolina and Milk*).—This dish is prepared in the same manner as the preceding. Make hot some milk in a saucepan, and put the semolina into it, taking care to stir it continually to prevent its becoming lumpy, or sticking to the vessel. This soup should not be made too thick, and must be well sweetened with sugar, and seasoned with a very small quantity of salt.

Potage à la Xavier.—Take one pint and a quarter of flour, and mix it with the yolks of six eggs and the entire contents of two others. Add to it a little salt and enough stock broth to render it sufficiently liquid to pass through the cullender. Now put in a spoonful of parsley, cut up very small, and mix all up together as intimately as possible. Afterwards, season the mixture with the fourth part of a nutmeg, grated small, and a pinch of coarse pepper, and mix them all well together. Now take a stewpan, and fill it three-quarters full of good stock broth. Put the composition into it by means of a ladle perforated with holes, and mix the contents of the pan as intimately as possible, and boil for a quarter of an hour, continually removing all scum from its surface.

Potage de Nouilles.—Mix the yolks of four eggs and some water with a little more than three-quarters of a pint of flour, season it with a little salt, and knead them well together until the dough becomes so well mixed and so stiff that it can be rolled out with a rolling-pin into a thin sheet of paste. It is then to be cut up into strips, care being taken while doing so that plenty of flour is dusted over their surfaces to prevent them adhering together. Now make hot in a stewpan some good stock broth, and drop into it the pieces of paste, and continue to boil for half an hour until sufficiently cooked, all floating fat being carefully removed during the boiling. When dressed, season it with a little coarse pepper, and pour it into a tureen. If preferred, the paste may be prepared with the whites of eggs, and seasoned with nutmeg and coarse pepper to suit the taste.

Glace de Volaille en Tablettes (*Jelly of Fowls in Cakes*).—Place in a stock-pot ten pounds of the meat of a leg of beef, and also the bones broken in pieces, the same weight of the fillet of veal, two knuckles of veal, five fowls, add sufficient water to cover it, and let it slowly boil. The surface of the liquid is then to be skimmed, and some seasoning added, and a small quantity of salt. The cover is then to be put on, and the materials contained in the stock-pot are to be continually boiled for six hours. At the end of that time the fluid is to be strained, again skimmed, and every portion of floating fat removed. It is then to be carefully evaporated in a pan, over a quick fire, and continually stirred with a wooden spoon to prevent its burning, until the liquid becomes of a gelatinous consistence. When it has become so thick that it adheres to the spoon, it is to be poured off into large shallow trays, previously slightly buttered. (The trays may be easily made, by turning up the edges of a sheet of ordinary tin-plate.) After the contents of the trays have remained at rest in a cool place for about five hours, they are to be cut into pieces about one inch and a half wide, and two and a half inches long. These pieces should be preserved in a tin box, slightly buttered on the inside, and always kept carefully closed. Sometimes vegetables are added for seasoning, which have been previously cut in pieces and fried in butter. By this means a superior colour and flavour is given to the preparation. Soup may be at once obtained by dissolving a few of these cakes in warm water.

Jus de Bœuf (*Essence of Beef*).—Take two large onions, wash and peel them carefully, cut in thin slices, and lay them at the bottom of a stewpan well buttered

inside. Put on them the trimmings of any kind of meat that you may happen to have at hand, and also the carcases or other portions of fowls, partridges, rabbits, &c. Add to them two pieces of beef of about two and a half pounds' weight each. Two ladlefuls of stock beef are then to be poured into the pan, and the vessel placed over a gentle fire, and simmered until the jelly it contains becomes of a light red. When it is found that a little of this, taken up on the point of a knife, becomes sufficiently solid to be rolled between the fingers without sticking to them, some boiling beef-stock broth is to be poured in until the stewpan is full. The contents of the vessel should now be carefully skimmed, and the usual vegetables added to season it, and then boiled for five or six hours. Again skim the fluid, and add some white of egg, previously beaten up with cold stock broth. Allow it to boil for twenty minutes, and carefully strain it through calico. This use of the white of egg is to clarify the liquid.

Blonde de Veau (*Jelly of Veal*).—To prepare this, take a middle-sized stewpan, and cover the inside with butter. Put into it some of the rump and knuckle of veal, and also a fowl, and some lean ham. Then two ladlefuls of beef-stock broth are to be added, with two onions and two carrots to flavour it. Now put on the lid, and place the vessel on the fire, until the liquid assumes the consistence of a jelly. Then pierce the meat in numerous places with the point of a sharp knife, to allow the juice it contains to escape. The stewpan is again to be covered, and exposed over a slow fire to a moderate heat, until all the juice of the meat has escaped, and become so gelatinous as to admit of being rolled between the fingers when a small quantity is withdrawn from the pan. When this happens, fill up the vessel with hot stock broth, and allow it to simmer at a gentle heat for about four hours. The contents are now to be strained, and are then ready for use. This preparation is much employed for colouring soup, and for making brown sauces.

Bouillon Maigre à la Laguipierre (*Broth named after Laguipierre, who invented it*).—For this preparation, take four quarts of split peas and three bundles of turnips, with the same quantity of onions, and carrots, together with one bundle of celery, and the white and yellow parts from another of leeks. Put them into twelve quarts of water, with some fresh butter, pepper, cloves, grated nutmeg, and salt. This must be done on the night previous to its being required. The vessel is then placed on the fire till the water boils, and it is then to be put by the side of the fire, where it may continue boiling throughout the night. On the following morning cover the inside of a stewpan with butter, and place in it five or six onions cut into slices. Lay on these two carp, two tench, and two pike, also cut into slices. Two ladlefuls of the broth already prepared during the night are then to be added, and the vessel placed on the fire and exposed to a moderate heat. When the fish are nearly reduced to the condition of jelly, the temperature of the fire must be reduced by throwing ashes on it, until the jelly becomes of a clear brown. The stewpan is then to be filled up with more of the broth, and strained through calico. It is then to be simmered for two hours, and strained.

Bouillon Maigre de Poisson (*Fish Soup*).—Lay some sliced onions at the bottom of a stewpan, previously well buttered. Put on them two pike, two tench, two carp, and a small eel, all of them being cut into pieces. Afterwards add six turnips, the same quantity of carrots, and a bundle of leeks, and celery, only the white parts being used. The fish are now to be covered with water, and boiled over a quick fire into a jelly. When this happens ashes are to be thrown on the fire to reduce it and diminish the heat, so as to darken the jelly gradually. After this is done fill up the stewpan with boiling water, and season the liquor with cloves, nutmeg, pepper, and salt. Then it is to be allowed to stand for two hours longer, and after being strained is ready for use.

Jus de Poisson (*Essence of Fish*).—Cut in slices four large onions; and having put them at the bottom of a stewpan, previously buttered inside, place on them two soles, two whiting, two tench, one carp, a pike, and a small eel, and pour over them two ladlefuls of stock *maigre* (*i.e.*, some soup prepared from vegetables only, without meat), and put the lid on the vessel. The stewpan is then to be put on the fire, and the degree of heat carefully regulated until its contents assume a lightish brown colour. The vessel is then to be taken off the fire, and more of the stock *maigre* added to reduce it to its proper strength. To it is to be added a bundle of parsley and chives, a sprig of thyme, some bay-leaf and basil. Season it also with salt, pepper, mace, and cloves, and boil it for two hours, and afterwards skim the liquid and strain. This essence is used as a sauce to serve with fish, and for other purposes.

Eau de Poulet (*Chicken Broth*).—Take a fowl already cleaned, and remove the lungs, &c., from inside it, and separate each limb with a knife into two portions, and put them into a stewpan with a little salt. Skim the surface of the pan, and boil the liquid for ten minutes. Now add the leaves of a lettuce, and boil for five minutes longer. Then put in a handful of sorrel, chervil, and bay-leaves. Replace the lid on the vessel, and having removed it from the fire, let it stand for a quarter of an hour, and strain the liquid through a fine sieve. Chicken broth should always be carefully skimmed before serving.

Bouillon de Poulet.—This soup is prepared in a similar manner to the last, but after it has been skimmed, a sliced turnip and carrot with a little salt are to be added. Chicken broth may also be prepared in another way. The fowl, having been cut up, is placed in a stewpan with two quarts of water, half an ounce of coriander-seed and two tablespoonfuls of pearl barley being added. When the liquid is skimmed it is to be boiled for three hours. Then the leaves of some borage and lettuce are added, the lid placed on the mouth of the stewpan, and the vessel taken from off the fire, and allowed to remain at rest for twenty minutes, and then the contents are to be strained. Another way consists in putting the fowl, previously cut up, into a stewpan, with two tablespoonfuls of rice and two quarts of water. Skim the liquid, and add half an ounce of coriander-seed and two pinches of poppy-grains. Simmer the whole for two hours, and then put in six or eight crayfish, and boil for twenty minutes. Afterwards add a handful of borage-leaves. Then put on the lid, and remove the stewpan from the fire. After letting it stand for fifteen minutes, strain the contents. Sometimes two tablespoonfuls of pearl barley are put into the water with the fowl, and when the chicken broth is ready some barley-sugar is dissolved in it.

Bouillon Rafraîchissant (*Strengthening Broth*).—Put into a vessel one pound of the neck of mutton, and the same quantity of fillet of veal, cut up into small pieces, with six pints of water. Afterwards add a handful of chervil, a little wild succory, and two small lettuces, all being previously cut small. Boil the whole for three hours over a gentle fire, strain, and salt the broth.

Panade. Boil some white bread cut into pieces in a stewpan with water, some salt and some fresh butter being also added. Make the panade pass through a passaire—a tin dish perforated with holes—and put it back into the stewpan. Season it, and allow it to boil for five or six minutes, then add a thickening of yolks of eggs, and serve immediately.

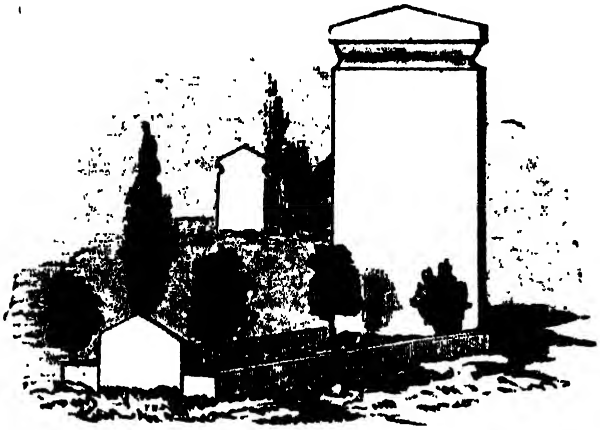
Bouillon de Veau (*Veal Broth*).—Simmer two pounds of the fillet of veal, with lettuce leaves and chervil, in about two pints of water, until ready for use. If this broth is required for a sick person, the quantity of water must be increased.

DEATH IN THE HOUSEHOLD.

IV.

The blinds of the windows of the house should be drawn down directly the death occurs, and they should remain down until after the funeral has left the house, when they are at once to be pulled up. As a rule, the females of the family do not pay any visits until after the funeral. Neither would it be considered in good taste for any friends or acquaintances to visit at the house during that time, unless they were relatives of the family, when by no means to be recommended, since in these cases it but too frequently happens that, being unable to restrain their emotions, they interrupt and destroy the solemnity of the ceremony with their sobs, and even by fainting. As soon as the funeral is over it is usual for the mourners to separate, each one taking his departure home.

While on the subject, we would caution our readers against, out of a mistaken and thoughtless kindness, offering, and even forcing wines, spirits, and other liquors upon the undertaker's men. If they were given instead a cup of tea or coffee and a sandwich, it would, in the



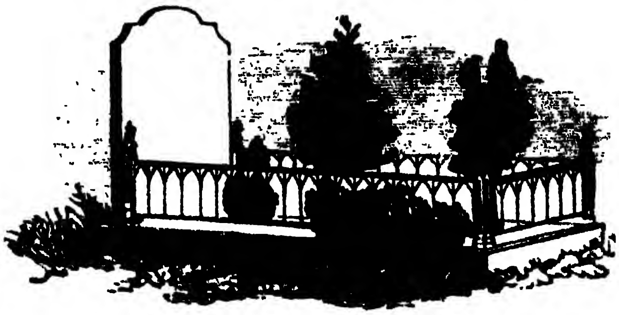


Fig. 2.

Fig 1

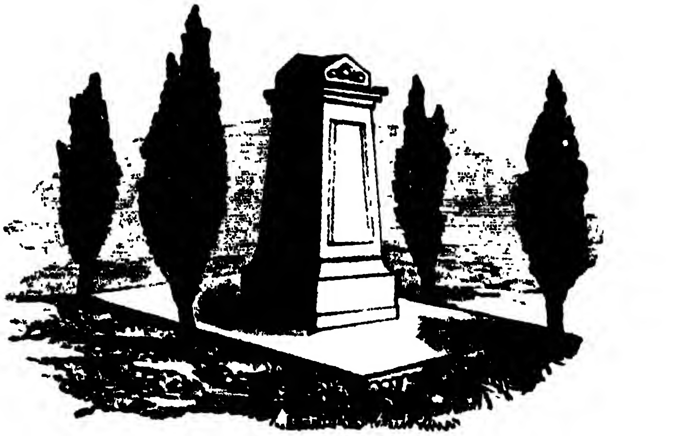


Fig. 4.

of course it would be only proper for them to do so. With regard to the time that ought to elapse after death before the funeral is performed, it may be said that in many cases—especially in the summer—the corpse is retained too long, and thus becomes injurious to the health of those living in the house. This is most especially the case when the deceased died of typhus or some other fever, and complaints of a similar infectious character. Under these circumstances, the practice is attended with danger to the neighbourhood, and should be most strictly avoided. Perhaps, as a rule, it may be said that funerals in winter should take place within one week after death, and in summer in a still shorter time.

It sometimes happens among the poorer classes that the female relatives attend the funeral; but this custom is generality of cases, be both more acceptable to them, and also keep them in the condition necessary for the proper performance of their duties.

Now, with reference to mourning, it has been customary for mourning apparel not to be put on until the day of the funeral, but at the present time it is more usual to wear it as soon as possible. The width of the hat-bands worn differs according to the degree of relationship. When worn by the husband for the wife they are usually at the present time about seven inches wide. Those worn by fathers for sons, and sons for fathers, are about five inches wide. For other degrees of relationship the width of the hat-band varies from two and a half inches to four inches.

After the funeral deep mourning is worn by the widower or widow for about a year. The same is also the case

with mourning for a father or mother, son or daughter, sister or brother. Occasionally, at the end of that period, half mourning is worn by the widow or widower for about six months longer. During the period while mourning is worn it is customary to employ envelopes and note-paper edged with a deep border of black. It is also usual for friends when writing to them to employ black-edged paper and envelopes, but in this case the black border must be extremely narrow.

For uncles, aunts, nephews, nieces, cousins, and other relations, the mourning is usually worn for a period varying from six to nine months. The black edge on the stationery is also narrower than that used for nearer relations.

It is usual to present the relations and friends of the deceased persons with what are called memorial cards, stating the name, age, date of death, where interred, and date of interment, and also a verse of Scripture appropriate to the occasion.

One of these cards is usually given to each of the mourners immediately after the interment, or if not ready then, is forwarded to them afterwards, as early as convenient. It is advisable that such cards should also bear in addition the number of the grave, since it often happens that relations afterwards visit the grave, and when they know the number the spot can always be readily pointed out to them by the officials of the cemetery company.

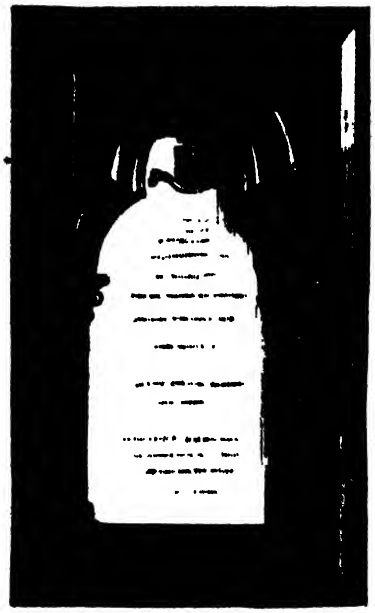


Fig. 5.

It is now proposed to give some information on the subject of monuments and grave-stones. Before a monument or grave-stone of any description can be erected, or the ground even enclosed, it is absolutely necessary that the exclusive right of burial in the grave over which they are to be erected shall have been purchased. The nature of the memorial stone to be erected will depend in most cases on the situation of the grave. In some cemeteries grave-stones are allowed to be put up only in certain spots, while in other situations only flat or ledge stones may be used. Purchasers of ground in the best situations in cemeteries are often compelled to erect monuments within a limited time after purchase. But they are not allowed to put up any kind of monument they please, since before it can be erected plans or drawings of the proposed memorial must be deposited with the company for a certain period previously, a copy of the inscription intended to be engraved upon it being also required to be deposited with the plans, the period allowed for the erection of such monuments being twelve months, and if not done within that time the purchase of the land will be void. Under certain circumstances, however, permission to delay its erection may be obtained from the company. Sometimes the directors of the cemetery stipulate that every kind of memorial stone erected on their ground shall be of the best quality, and that no Bath, Caen, or other free stone shall be employed for that purpose. The height usually allowed in most cemeteries for a head-stone is about five feet, and no stones are to be erected that exceed that height. A stipulation is sometimes made, with the view to the durability of the monuments that are to be erected, that only copper clamps shall be employed in their construction.

With a view to give as much information as possible as to the cost of erecting monuments, illustrations, showing four different kinds, are given. They were all constructed of the best stone, Portland or York, and some of them were enclosed with railings. The total cost of Fig. 1 was £7; of Fig. 2, £9 9s.; Fig. 3, £20; while the expense of Fig. 4 was £22. But if marble had been employed for this purpose, the cost would, of course, have been greater.

Figs. 5 and 6 are specimens of wall-tablets.

The expense of such tablets as these varies with the materials chosen for their execution; but estimates for tablets of somewhat similar description, and in any required material, may usually be had from all mortuary masons without charge.

If the body is to be buried in an ordinary grave, only wooden coffins are allowed to be used; while if in the catacombs, or in a vault or brick grave, those of lead, stone, or iron only are to be used. When a coffin is constructed of wood, elm or oak is usually used; those made with elm being the most common, owing to the cheapness of the wood, and other circumstances.

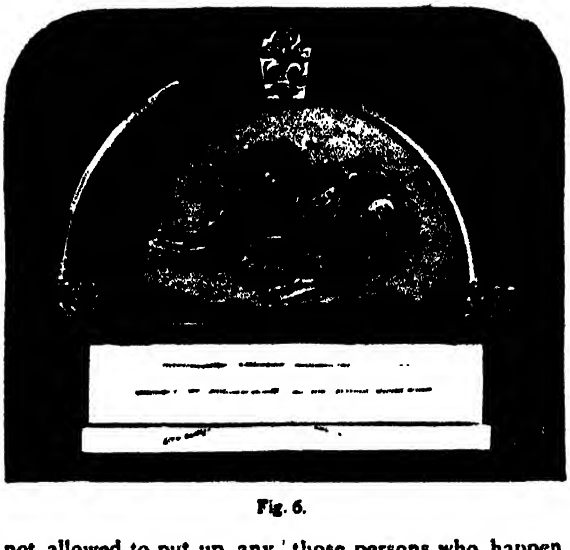


Fig. 6.

In some cases a double coffin is used for interments. In this case the inner one, in which the body is placed, is called the shell; while the outside one, in which the shell is enclosed, is termed the case.

A modification of this kind of coffin has been lately introduced. In it a piece of plate glass is fixed in an opening in the upper part of the lid of the shell. A coffin of this kind is meant to be used for those persons who happen to die at a considerable distance from home, and where many days must elapse before any of the relatives can reach the place where the deceased died; the corpse being placed in the shell, which is then closed with the false cover, in which the glass is fixed, the space between the lid of the shell and the shell itself being filled up with melted pitch, so as to prevent, as much as can be done, all access of air to the corpse, and thus avoid decomposition setting in as long as possible; the use of the glass being to give the relatives an opportunity of gazing again on the face of the

dead previous to interment. The outside of the wood of which the coffin is made is sometimes made smooth, and polished with beeswax. Coffins thus manufactured may be had cheaper than those covered with black; but where the mourner is not influenced by the trifling extra expense or other considerations, black cloth, prepared for the purpose, seems to be the most fitting material with which to cover a receptacle for the dead. There is a more solemn feeling caused by the sight of a coffin covered with black than is produced by the uncovered wood, however carefully it may be polished.

When death occurs in a family living in one or two rooms in a crowded neighbourhood, the necessity of retaining the dead corpse in rooms in which the living have to eat and sleep, is often attended with serious consequences to the health of the inhabitants. To meet this evil, some of the cemetery companies have places set apart, where, without paying any extra fees, the coffin containing the corpse may be privately conveyed, and kept in safety until the time appointed for the funeral. At the time of the funeral the mourners assemble here, instead of at the house from which the corpse was removed. By adopting this course, much of the expense of the funeral is saved, as all the cost attending the procession from the house to the cemetery is avoided. It need not be said that there are many cases, as, for example, that of a widow with a young family, left nearly destitute by the loss of her husband, in which this saving of expense may be a matter of serious consideration.

Some of the cemeteries near London adjoin a railway, by which means the coffin and the mourners may be sent direct, by what is known as a funeral train, from the private station of the cemetery company at the London terminus to the place of burial. In this case, as the funeral procession will only be required from the residence of the deceased to the London terminus, and not all the way to the cemetery, considerable expense will be saved.

THE HORSE.—XII.

CONDITION (*continued from p. 195*).

HAVING, in our last paper on this subject, explained our views with regard to getting and keeping a horse in condition, or the most fit state to do the work required of him, we will now proceed to notice some of the ailments (and the remedies) that are most likely to assail him, and which, if taken in time, may not be of sufficient importance to necessitate calling in a veterinary surgeon. It is true—remembering the old adage, "that a little knowledge is a dangerous thing"—we approach the subject with fear and trembling, having so often seen most untoward results from amateur doctoring; at the same time the ills we intend to touch on are so unmistakable, and the medicines we shall prescribe so simple, that the most thick-headed rustic can scarcely go wrong in their application. Moreover, we know from experience the necessity of taking things *at once*, and a veterinary surgeon is not always to be procured at a minute's notice; so that the disorder, still progressing unchecked, may ere he arrives have developed itself into something of a serious character. For those of our readers who live in towns these objections do not hold good, as, if one medical man is not forthcoming, another is, and here we should advise the inexperienced horse-owner to procure assistance immediately, instead of relying on himself. But in the country a distance of several miles often intervenes ere a farrier can be reached, and supposing a man to own but one horse, and that one ill, he has no resource but to send some one on foot for assistance; so that inflammation may set in before the doctor arrives on the scene, and the patient be well-nigh dead, although, taken in its earlier stages, the disease might have yielded to the most simple treatment. On the other hand, also, the veterinary in the country may, when the messenger reaches his house, be miles away and unlikely to return for hours; so that the poor horse, as we have too frequently known to be the case, has been left twenty-four hours ere assistance could be rendered him. Too often in these cases the village blacksmith or cow-leech is applied to, a man who on the strength of some old receipt has elected himself the Æsculapius of the place, although totally ignorant of the nature of the drugs and nostrums with which he stuffs his unhappy patients—the same "drinks," as he styles them, serving for all, no matter what the nature of their complaint may be. Occasionally the illness, so to say, suits the remedy, and a cure is effected, but it as often happens the other way, and we need scarcely say that the experiment does not pay for trying.

One of the most common complaints to which horses are subject is stomach-ache, colic, gripes, or, as it is called in some of the counties, "fret." This arises from various causes, or, rather, is said to arise from them, such as being allowed to drink hard water while heated, eating dusty chaff and other things of that sort; but as it often comes on without any apparent reason, and some horses are much more prone to it than others, we place but little reliance on these opinions, though both of the causes mentioned must be injurious, and should by all means be avoided. Almost every veterinary surgeon has his peculiar drink for this complaint, many of which we have tried and found answer their intended purpose very well indeed, so that it is a safe plan to have some made up by a medical man you can depend on, and keep them always at hand, giving one the moment any symptoms of colic appear. This will be known by the horse breaking out into a profuse sweat apparently without cause, throwing himself down and rolling, at the same time uttering groans as if in the greatest agony. A drink taken in time will often give immediate relief; but a neglected case very often terminates fatally, and when the complaint once gets head it is a difficult matter to turn it. Should a horse be attacked and no medical man at hand, and you have no drinks to fly to, the following receipt will be found efficacious, and we can recommend it from personal experience, having once saved a valuable young cart-horse by its means. In fact, after having the receipt, we used it in preference to any drinks; and it has the merit of being quickly prepared, and the ingredients can be procured in most villages:—Three quarts of wheat-flour gruel, well boiled; three drachms of laudanum; half an ounce of spirits of turpentine; and two ounces of sweet spirits of nitre. Give moderately warm. Perhaps it is as well here to describe the best way of giving a drink, which with inexperienced hands is a matter of some trouble, and leads generally to the wasting as much as the horse swallows. Having put on a common head-stall, the best plan is to fix a long line to the front of the nose-bend—if we may so term the lower portion—this line should then be passed over a beam, or anything which will serve to bring the horse's head well up, where it is kept by an assistant straining the other end of the line, and either raising or lowering it as circumstances may require. The man who administers the drink—unless tall enough to reach well up, and few are with a large horse—had better stand on a stool, and then out of either the drench-horn or from a champagne bottle (we prefer the latter) pour it down the throat. Of course with a violent horse the stool must be dispensed with, but few horses resist so much that it cannot be used.

Cold, sore throat, or influenza is another complaint which the horse-owner must expect to find occasionally in his stable: the symptoms will be cough, running at the nostrils, dulness of the eyes, heat in the mouth, and a staring coat; as it progresses, the breathing will become affected and the pulse become feverish. A blister of

mustard mixed with turpentine rubbed well into the throat *at once*, and a pint of linseed oil administered internally will often remove the symptoms. The horse should be kept on mashes made of linseed and bran, and rested for a few days at least. Should the disease not yield to this treatment, call in a medical man at once. With horses, as with men, colds are the root of many complaints, and should on no account be neglected. Taken early, they are generally easily cured, but a day's work in an unfit state, through oversight or neglect, may produce the most serious consequences. Remember also, if you have more horses than one, that in all probability it will go through the stable; so we earnestly recommend you to be on the alert to detect the earliest symptoms in the rest of your horses when one has been attacked.

These are the principal cases in which preventive medicine can be used by the owner, so far as natural illness is concerned; but we must by no means overlook the prostration following a very hard day's work or severe run with hounds. It is true that ill effects seldom follow either one or the other when the horse is thoroughly up to the mark; but, on the other hand, unless a man has been long conversant with horses, and is a very close observer of them, it may so chance that he may call upon his good steed to undergo either one or the other when he is what is technically termed "amiss," although to his owner's inexperienced eye he may seem perfectly well and in good health. This once occurred to ourselves. We rode a horse with the hounds, and had a fair, although not a severe day, detected nothing wrong while he was going, but fancied he seemed rather dull on the road home; at night he was a little off his feed, but that did not cause uneasiness, as he was by no means a gross feeder after work. The next day, however, told a different tale; he was cold and chilly, stood all in a heap, and set his coat the wrong way like a French hen; moreover, when moved he seemed stiff and powerless in his limbs. Calling in a neighbour famed for his knowledge of horses and their ailments, he advised us to give two ounces of sweet spirits of nitre in a pint of castor or linseed oil, and cover the horse up very warm, putting on a hood and regular suit of clothing in addition to his common rugs. This soon had the desired effect, and in a few days the horse, by dint of a little nursing, was as well as ever. We never could discover any cause for his being taken in the way he was, and can only attribute it to want of condition—a source of more evils amongst horse-flesh than many people imagine.

Turning to another description of annoyance the man who keeps horses must expect to suffer from, we come to sore backs, perhaps about as vexatious and trying a thing as one can encounter. With a horse lame or ill you know at once that you cannot ride him, and content yourself accordingly; but a sore back, especially when not very bad, leads you perpetually on in the hope that he will do for work in a day or two, while often each fresh trial, made a few hours too quickly, only postpones the recovery to a more remote period. With care, and saddles well fitted to the back which has to bear them—a point, by the way, too much neglected, but in reality of as much importance as the fit of your own boots—sore backs should be unknown in the stable. Negligence or ignorance on these points, however, will cause the evil, so that it is necessary we should point out the cure. There are many remedies for it, the best one, no doubt, being, as an old sportsman once told us with a sly twinkle of the eye, to pull off the horse's shoes. It is not, however, every one who has the inclination or can even afford to pursue this course, so that some other must be followed. We have found one drachm of crude sal ammoniac, one ounce of nitre, and three-quarters of a pint of vinegar, put in a wine-bottle and filled up with cold water, a capital preparation, and have also used it successfully where a horse's legs (to use a stable term) "flew to pieces," without our being able to discover exactly where the fault lay. In fact, it is good for all sorts of strains. To prevent bad backs, as we said before, the saddle should fit accurately; and after a journey should never be removed until the back has had time to cool; the girths should be loosened, and the saddle gently lifted for a moment or two, and then replaced for a time, or, otherwise, a cloth immediately put over the portion it has covered.

Splints are and ever will be a source of trouble to the horseman, few horses are without them at some time or other of their lives, though they generally appear on young horses. Oftentimes they cause no inconvenience, and come and go without the owners ever being aware of the fact; should one, however, chance to be so placed as to interfere in the slightest degree with the action of any muscle or tendon, it will be made unpleasantly known to him by his finding that without apparent cause his horse has become lame. We should explain that what is termed a splint is a deposit of bone on the surface of the natural bone, caused by inflammation of the membrane covering it, usually—we may say, invariably—the effect of a blow. When on the inside of the canon-bone, the other leg is usually the cause of mischief; if found on the outside, it may be attributed to a blow accidentally received. Unless the horse is lame from them they are best left alone; if he is, of course remedies must be applied, and we know of none so efficacious as biniodide of mercury ointment. The hair should be clipped off, and this ointment well rubbed in until a blister is produced; in time a scale will form and fall off, when the same process must be undergone again; in time the splint will be absorbed and the horse sound again. The treatment is painful, and the horse must be securely tied for some time after the blister is applied, so that he cannot reach the part with his mouth. Sprains can be treated in the same way, but if of any standing will require the firing in addition; in that case, of course, a veterinary must be called in. Curbs are better put under the treatment of a competent man at once. Another slight ailment of the legs is thoroughpin, which causes a defect, but seldom lames. It may be successfully treated, in its first stage, with: Sal ammoniac, half an ounce; saltpetre, one ounce; vinegar, one pint. The lotion to be rubbed in twice a day until the parts are tender.

We have now run through all the diseases, and their remedies, slight enough for amateur treatment, that have come under our observation during twenty years' experience. In our next article we shall say something concerning accidental lamenesses and their treatment.

HOW TO REMOVE RANCIDITY FROM FAT.—Melt the fat in a saucepanful of boiling water, and add a muslin bag containing powdered wood charcoal, or ivory-black, the particles of which must be too coarse to pass through the interstices of the muslin. Boil the water with the fat for a short time, until the rancidity has left the fat and united with the charcoal. The bag of charcoal is then to be removed, and the water allowed to become cold, when the fat will form a solid layer on its surface. This should be removed, boiled with a slice of moistened bread, and preserved for use in well-covered jars. The following is a French method: Put the fat into a saucepan over a clear fire, and when it becomes very hot, remove it farther from the heat. Then take a thick slice of bread previously soaked in water, and put it into the melting fat. The bread should be allowed to remain until crisp. When this happens, the fat must be removed farther from the fire, and allowed to cool a little, and then strained through fine calico into earthenware pots. The mouths of these vessels must be securely closed with thick paper, and kept in a cold and dry place.

SINKS AND DRAIN-TRAPS FOR DOMESTIC PURPOSES.

There is perhaps nothing in the extensive range of domestic economy which is considered of greater importance by the mistress of every neat and comfortable home than that the house should be free from all unwholesome and disagreeable smells. How to get rid of dirty water and refuse, without creating more or less ill-odour, has always been a difficult problem, and it is a point which requires to be properly treated in the Household Guide. In the present article we propose bringing forward certain inventions and improvements which have been made in the fittings for back kitchen and scullery sinks, and in those for the housemaid's pantry and the several slop-closets distributed about the landings of the house. We shall likewise allude to the lavatory basin, the butler's pantry or jeweller's wash-trough, the high-pressure cold water stop-valve, and the stable or yard trap, of which illustrations are given.

Scullery Sink and Trap.—Fig. 1 represents a section of Antill's patent trap, which is adapted for all ordinary scullery drains. It may be set with the greatest convenience and economy in a pottery block eight and three-quarter inches on the square, which is one brick-length; or thirteen and a half inches on the square, which is one and a half brick-length. It had better be four and three-eighth inches in thickness, in order to course with one brick on edge, and so save cutting. An ordinary glazed drain-pipe is represented in the diagram as the means by which the water is carried off. Such arrangement precludes the possibility of vermin or rats ever interfering with the action of the drains. The blocks mentioned are much cheaper than stone, as they are ready prepared, both as regards the size and shape; and consequently the expense occasioned by fitting the traps in position,

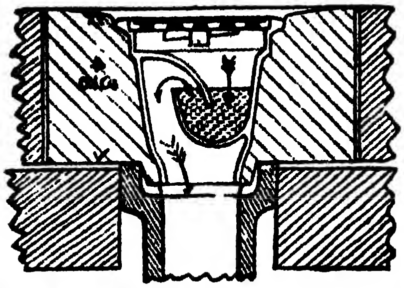


Fig. 1.

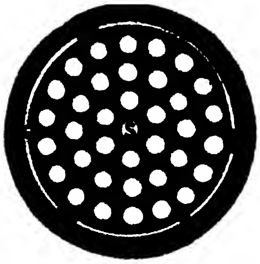


Fig. 3.

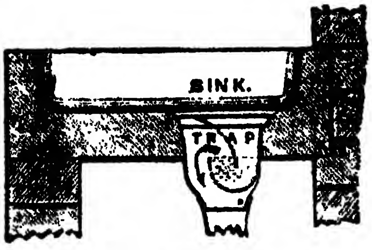


Fig. 2.

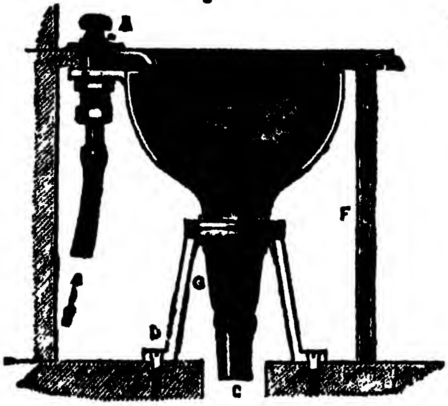


Fig. 6.

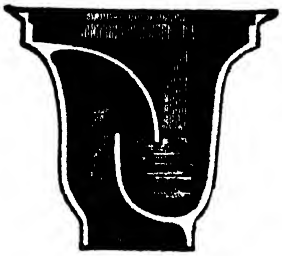


Fig. 4.

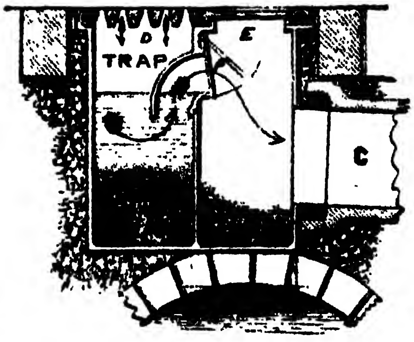


Fig. 10.

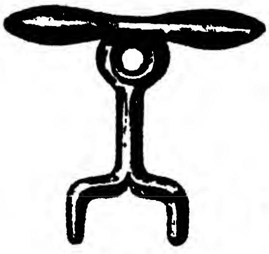


Fig. 5

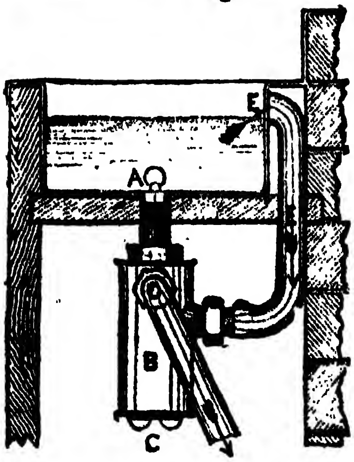


Fig. 8.

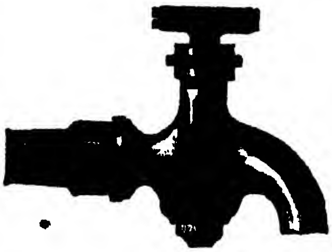


Fig. 9.

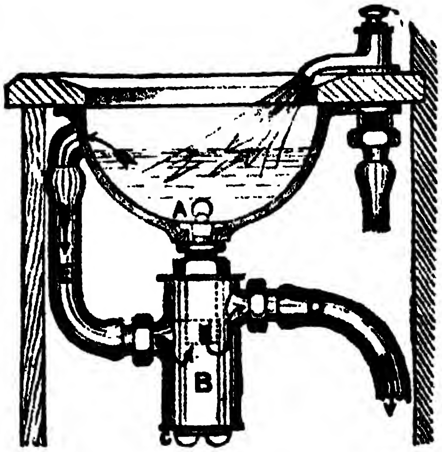


Fig. 7.

squaring the stone, cutting the bricks, and levelling the surface of the block, is saved.

Fig. 2 represents a sink of pottery-ware, which the trap described is made to fit. This material is far preferable to stone for sinks, as it is cleaner, and does not absorb grease. These pottery sinks are made uniform in size, and consequently the traps fit to a nicety, and prevent leakage as well as the expense incumbent on the preparation of stone. Figs. 3 and 4 represent Antill's patent trap with Stidder's patent lock-grate, which remedy the defects of the bell-traps. This trap is a most effectual preventive against effluvia and smells of all kind, as well as loss of small articles. It is complete, whether the lock-grating be on or off, and can be easily cleaned out, as it is made of lead, perfectly smooth. The patent lock-rim grates are of brass, and consist of an outer ring, provided with a ledge upon which the grate rests. This grate is peculiar, by reason of being furnished with two or more lock-lugs on the under edge, which pass beneath the ledge of the outer rim. These lock-lugs are of tapering form, and secure the grate, by giving a slight turn towards the right hand; to unlock which, a turn in the opposite direction must be given. For the purpose of cleaning the trap and pipe, a spanner, as represented by Fig. 5, should be used, which will readily unlock the grate and lock it again properly after the trap has been cleaned.

Housemaid's Slop-closet.—The next thing we have to mention is the housemaid's slop-closet, without doubt a very useful apparatus, and more especially useful in a lofty house, where there should be a slop-closet on the second-floor staircase, as also a service of water, for the purpose of saving the loss of labour as well as the inconvenience and disagreeableness of carrying water, both clean and dirty, from the bottom to the top of the house and *vice versâ*. Fig. 6 represents an apparatus for this purpose, which consists of an enamelled iron basin, B, provided with an outlet pipe, C, at the base, in which a lock-grate trap, G, is fixed, to prevent any smells arising from the drains or pipes. This basin and trap rest either upon the stand, D, which is screwed to the floor, as represented in the diagram, or it may be suspended from the top of an enclosure, constructed about two feet eight inches high, for the purpose of accommodating a housemaid's slop-bucket within it. By the action of a press-down valve, marked A on the diagram, a flush of water is introduced, so as to cleanse the basin thoroughly after every use.

Lavatory Basin.—The lavatory basin is represented in Fig. 7. This basin is fitted with patent anti-vibration valves for hot or cold water; the waste-pipe and plug at A discharging into the soap trap, B, into which the overflow-pipe, E, likewise discharges. This arrangement prevents any smell arising either from waste or overflow-pipes. All substances, which chance to be passed through, are detained in the soap-trap, and may be thence removed by unscrewing the plug, C, by which means also the pipes are kept free from dirt.

The Butler's Pantry or Jeweller's Wash-trough.—This trough having been filled with water in the ordinary manner, as shown in the diagram (Fig. 8), is emptied by means of a plug at the bottom, marked A. To prevent the loss of spoons, forks, and such-like articles, as well as the rising of smells, from either the waste-pipe, D, or the overflow-pipe, E, as also stoppage of the pipes,—this apparatus is furnished with a soap-trap as before described, which is represented in the diagram by the letter B. On raising the plug, A, the water passes down into the soap-trap beneath, and there leaves any sediment or articles which had been allowed to pass, and can be removed at the thumbscrew, C. The waste water now overflows down the waste-pipe, D, as also the overflow waste from the pipe, E. This arrangement is a perfect preventive against the loss of any goods, and on this account is found invaluable by jewellers.

The High-pressure Cold Water Stop-valve.—This valve is represented by a diagram of Breedon's patent (Fig. 9). It is intended for general house purposes and varies in price from two shillings and fourpence to nine shillings and eightpence. It consists of a valve-box, closed in at the top by a screwed cover, fitted with a stuffing-box, through which a spindle passes down to the valve beneath. This spindle is screwed, for a portion of its length, beneath the stuffing-box, so that by a turn and a half of this spindle the valve is fully opened. The valve closes from the pressure-side, so that the tendency of the pressure is to prevent leakage, which is further assisted by a coil-spring, acting against the back of the valve to prevent vibration. This valve, if it gets out of order, is always accessible, without the breaking of any joints; and a duplicate can be substituted in a few minutes, by unscrewing the bottom plug. This valve is remarkable for its cheapness.

Stable or Yard Trap.—Fig. 10 represents a stable or yard trap on the improved plan, as before described. Its leading features are:—First, that it has a well, marked A, under the grating, to receive gravel or other refuse matter washed down the grating, which in ordinary traps lodges in and stops up the drains; secondly, that it is fitted with a valve, marked F, which opens to allow the drain-water to pass through, but closes by its own weight, and so prevents the return of smell, should there be no water passing to fill the trap during dry weather; thirdly, there is a second well, marked B, in which any excessive sediment lodges before entering the drain-pipe, C; fourthly, there is a cover, E, to this second well, which closes down air-tight by a luted joint, yet can be instantly raised, if necessary, to remove or examine the valve or the drain; fifthly, if placed over a main sewer, as marked G, then the bottom of the second pit, B, is left open, and direct communication to the main sewer is obtained, if necessary to clean it. Pipe C is then done away with.

Some of the apparatus we have described and illustrated in this paper may be viewed at the Museum of Building Appliances, 9, Conduit Street, Regent Street, London; much of it may also be seen at the Office of the Local Government Board, Whitehall, S.W., by whose medical officer the sinks and drain-traps have been examined and approved.

RUSTIC CHAINS.

A PRETTY method of making rustic chains to hang from porches, verandahs, or garden arches for the support of the smaller kinds of creepers, is in use in Holland and Belgium. It consists in taking sticks of from one to two inches in diameter, and sawing them into lengths of from

three to six inches; then cutting willow rods of about half an inch in diameter to about the same length; splitting them, and bending one-half of one of them so as to form a semi-circle round the end of one of the larger sticks, and securing it in its place by nails. Through this loop the bent willow-rod, to be fastened to the next piece of stick, is passed, before being nailed in its place, and so on till the required length of chain is completed. The kinds of wood which look best for this work are those which possess a rough bark, such as the maple or wych-elm. The especial advantage of these chains in rustic work is that they form graceful curves, which are not otherwise to be obtained in that description of garden decoration.

HOUSEHOLD CHEMISTRY.—XV.

ACTION OF WATER ON LEAD—POISONING BY LEADEN CISTERNS, WITH ANTIDOTES.

It is an old saying, that "we must eat a peck of dirt before we die," which implies that it is no matter in what form that peck of dirt is eaten; but we must take care that we do not eat, mixed up with this dirt, poisonous substances, by which our lives will be jeopardised and our health impaired. Great care has been taken of late by our legislators for the purifying of our streams, and causing that the water with which we are supplied be drawn from clean and wholesome sources; but the fact, that no means is known so convenient for the storage of water as cisterns lined with *lead*, and for its conveyance as *leaden* pipes, especially with regard to small quantities, renders it not only desirable, but highly essential, that we should become informed of the means whereby many—very many—have been, and continue to be, poisoned by slow means, and how this poisoning may be best prevented. We, for our part, should recommend the adoption of iron-glazed pipes and pumps, with slate or cemented cisterns; but as the use of leaden-lined cisterns and pipes is universally adopted, it is with them alone we have now to deal.

The action of any water on lead depends on its possessing nitrous and nitric acids, which result from the decomposition of organic matter and of ammonia contained in the water. It is therefore of the first importance that both municipal and corporate bodies, as well as private individuals, should satisfy themselves of the sanitary value of any water before making use of it. The question to be answered is, Does such water exert a solvent action on *lead*, and does it contain a nitrogenous acid or any compound likely to create one? It is to be observed that water which would dissolve lead to a great extent, and render such water unfit for use, would by reason of the presence of certain mineral ingredients be less liable to hurt; and therefore it is not to such water we particularly allude.

It behoves us to be on our guard in all ways with regard to water, more especially by reason of the great quantity of organic matter, both animal and vegetable, as well as nitrates, which it is found to contain, and which act upon the metal of our cisterns and pipes. It is a good plan, and one we ourselves invariably adopt, to let off all the water out of the cistern every morning; but this cannot be done when the pipes are not connected with the main, but only periodically turned on by the agency of the turncock, as the cistern would then be left empty. In such case, it is well to draw off, over-night, into a pail or glazed vessel, sufficient water for the morning's breakfast and consumption.

By reason of the improper way with which some of the better class of houses of our suburbs, rented as highly as £30 per annum, are fitted with cisterns, we feel it our duty, while speaking on this topic, to warn our readers before taking a house, to see that the cistern or water-tank is properly situated. The only cistern is, in some houses, placed in the closet—the cistern, too, an open one where the water cannot fail to become contaminated, and imbibe all sorts of impurities. In a rather more rural district we can name, again, a well for the supply of several families, where a vast privy is dug within a few yards of it, and the foul exudations through the earth and brickwork may be seen oozing through and making their way into the water by slow but continual degrees. Both such waters as these, notwithstanding they were pure at the time of their entry into these reservoirs, are sure to act upon the metal of any cistern or other leaden vessel into which they may be poured; besides being in themselves most unwholesome and pernicious, as well as filthy.

Action of Water upon Lead.—Rain-water, however cleanly collected, even in the open country, is charged with carbonic acid gas, and if put into a bright *leaden* vessel, the metallic lustre of the vessel will be speedily dulled, and a film of carbonate and of oxide of lead will be formed on the vessel, showing that a chemical action must have taken place; and if the water be then analysed, distinct evidence of the presence of lead in solution will be found. Water, by reason of contact with the atmosphere, will imbibe this gas, so that the same oxidation of the metal, though to a much smaller extent, will be found to take place, if distilled water (which is free from this gas) be put into a bright leaden vessel and exposed to the air.

The composition of the oxide of lead and carbonic acid corresponds to *white* lead, and is formed through the action of the carbonic acid contained by the rain-water, or imbibed from the atmosphere, in the case of distilled water. The difference of the action of rain-water and distilled water (kept from the atmosphere after being distilled) will be readily seen, if poured upon clean—that is, bright—lead, upon which there is no oxide, and allowed to remain for some considerable time; the action of the rain-water we have already described, dulling the metal, and forming a film or oxide upon it; while distilled water (which has been kept from contact with the air after distillation), when poured upon the metal, and allowed to remain for any time, will be found to produce no solution of the metal, nor will analysis of the water show that any of the metal is held in solution. If a vessel in which is rain-water, or other water containing carbonic acid, be freely exposed, portions of the carbonate will become dissolved; but, independent of this, the carbonic acid, which is always imbibed from the air, proves much more effective for its solution, and consequently a considerable portion will be detected in solution by chemical tests after the lapse of some time. Nitrous acid is another property largely possessed by rain and other waters. This acid acts with great rapidity on *lead*. Ammonia, too, transformed into this acid, is capable of rendering *poisonous* the water in which it is present, such water being kept for a sufficient time in a leaden vessel.

Waters which have been freed of their acids, and of substances capable of producing them, have no action on lead, and may be kept with perfect safety, and without being poisoned or deteriorated, in *lead-lined* cisterns, and conveyed by means of leaden pipes; while the practice of storing or collecting water which contains nitrogenous acid, in *leaden* cisterns or tanks, as is the general custom for domestic use, is most pernicious; since the imbibing of lead into the system is sure to result, the effects of which have been already stated. An invention has been patented, whereby the nitrates which act upon lead with so great power may be removed, as also organic matter held in solution in the water, provided the organic matter be not present in the water to too great an extent. The invention consists of coils of iron wire or portions of sheet iron being suspended in the water, and, after sufficient time allowed for the iron and water to act upon each other, filtering off the deposits which form. The explanation of the purifying of the water, by this process, from the nitrates and organic matter, is as follows: the iron decomposes the nitric acid, which is transformed into sesquioxide, and sinks to the bottom; whilst nitrous gas is set free, and oxidises the carbonaceous substances which still remain in the water, producing carbonic acid and a lower oxide of nitrogen. This invention for purifying water has been well tried and tested by chemists, and is pronounced by eminent authorities to be thoroughly efficient and satisfactory. We have described the effects of lead poisoning, and the proper treatment, under the head "Domestic Medicine," at page 195 of the present volume.

We spoke of water which would dissolve lead to a great extent, but is not generally liable to hurt, by reason of the presence of certain mineral ingredients. Such water,

containing lead, is prevented, as by an antidote, from injuring the imbiber, and therefore is quite safe for consumption. The sulphates, phosphates, and carbonates of the alkalies and of the alkaline earths are the properties of this water, which serve as the antidote, or react upon the lead salt. All neutral salts, whose acids are capable of combining with lead or the oxide of lead, and form an insoluble compound, serve the same purpose, and act as an antidote, or, in other words, react upon the lead. The presence of ever so small a proportion, either of a sulphate or phosphate, in a water, will prevent the corrosion or oxidation of the metal; carbonates, too, act in a similar manner, especially the soluble bicarbonate of the alkaline earths; by the action of which an oxycarbonate of lead is produced—a most insoluble compound, one part only being taken up by several million parts of water. It is in this way that mineral and spring waters, which contain one or more of these salts, may be kept without detriment in leaden vessels, or be conveyed through leaden pipes, as they will not take up any portion of the lead. No water, however, whether mineral or other, in which exists nitric or nitrous acids, either in a free state, or in combination, should be kept in leaden cisterns or passed through leaden pipes; neither must water impregnated with decomposing, organic, nitrogenous matter in solution. The salts we have named as existing in mineral waters will not prevent these acids, if contained in the water, from dissolving lead. Moreover, decomposing animal matter forms these acids, and therefore it is that water containing it will, without doubt, act upon lead with the same power as though the acids themselves were directly present in the water. The stages of transformation of decomposing organic matter are these: first, the production of ammonia; then, by further oxidation, nitrous or nitric acid; in the completion of transformation the power of corrosion becoming very great; so great, indeed, that several grains of lead may be found held in solution in every gallon of water. Thus it is that it would be dangerous in the highest degree to retain or pass such waters through leaden vessels; which would increase their unwholesomeness, already deadly enough by reason of their decomposing organic contents. The action of some spring waters upon lead is very great, so much so, indeed, that there are marked indications of lead being in solution in the water (action being allowed to continue through some time); this, too, notwithstanding the waters contain sulphate. The cause of this is that the water contains, if not nitrous and nitric acids in a free state, considerable quantity of nitrates. Under such circumstances, notwithstanding that the sulphuric acid present in the water combines with the oxide of lead already dissolved, there remains the active solvent agent in the water, which continues to exert its action upon the metal of the vessel.

The insoluble precipitates which after a time corrode the interior of a leaden cistern or pipes, and form a solid coating over them, serve to protect the water from contamination, as they prevent its contact with the metal. Thus, it may be remembered that an old cistern is not nearly so likely to create danger as a new one; and it specially behoves the occupiers of all newly-built houses to be on their guard against this simple, but subtle, means of poisoning, or irremediably impairing the health.

BEES, AND BEE-KEEPING.

III.

Directions for Taking the Honey.—There are various ways of taking the honey from the hive; the old method cruelly destroyed the bees, and deprived the owners of their industrious insects; another way stupefies them for a time, and is attended with even the danger of killing them, but the most sensible method seems to be that by which the honey can be taken without either destroying or endangering the lives of the bees. This system is called tapping or drawing, and is spoken of favourably by many writers on bee management, and is as follows:—

"When twilight appears, and the bees are all quietly reposing in the hive, the person who usually attends to the bees takes an old chair, from which the seat made of rushes has been worn away, turns up the hive on the chair, and places over it an empty hive, which has been smeared interiorly with honey, or sugar dissolved in beer. Round the point of junction a cloth is wrapped, and with a stick the reversed hive is tapped round the sides, beginning near the bottom, the strokes gradually ascending to the top. The strokes are not to be too rough, lest the combs be loosened, although they are generally more firmly attached than supposed. A humming sound will presently be heard, and the bees, almost asleep, will rise into the upper hive. The cloth round the hive should be now removed, and the upper hive raised about an inch above the other, to facilitate the emigration of the inhabitants. The lower hive when completely deserted is to be left, and the upper one removed to the bee-stand; the aperture may be closed for a short time, but the bees at this hour are too sleepy to desire to go out, and the next day they will resume their usual occupations as though nothing had happened."

This plan of taking the honey should be adopted early in the season, or the bees will not so quickly go to their work again; but the best plan is to unite these bees to those in another hive, being careful always to leave the bees a sufficient store of honey for their food. For this object, set apart what is called a stock-hive—a beehive well filled with honey, and capable of supporting more bees. This hive—after being turned up, and its drowsy inhabitants well sprinkled with sugar or honey dissolved in ale, the bees just removed also—this stock-hive is to receive over it the hive just filled, and the inhabitants of it are to be tapped down among those in the stock-hive; the queen of the swarm to be united to the stock-hive having been previously removed. If the two queens are allowed to fight, it may cause a general battle and destruction, which is always best avoided. The whole arrangement can be made in about half an hour, and with no danger of being stung, as the bees are too fatigued with the day's toil to notice what is being done. May or June is the best time for this removal. Honey may be taken from boxes or glasses in May; from a capped hive a glass may be taken in June, but the time for emptying the hives is in August.

The other mode of taking the honey from the hive is by stupifying the bees with intoxicating smoke, when they become quite harmless, and the honey may be removed without any risk or trouble. Some bee managers consider the fumigation beneficial rather than otherwise, and that the dried *Fungus pulverulentus*, or furz-ball, and the *Bovista gigantea* are best; but rags steeped in saltpetre and water, or tobacco-leaves rolled up in paper, answer the purpose.

In using tobacco, care must be taken not to fumigate the hive too long, or some of the bees will die. A gauze (as before described) and gloves should be worn by persons not used to bees, and a bottle of hartshorn should be at hand, in case of a sting.

The apparatus for fumigation consists of a small tin box, with a tube extending from each end—one end made for inserting into the hive, the other for attaching to a pair of common bellows.

Place the substance for fumigation, ignited, into the tin box; insert the tube into the hive, and gently move the bellows; when, after a little buzzing, they will become quite still, and the bees will be found on the board apparently dead. The hive may then be removed, and a fresh one, smeared inside with honey, may be placed over them; or they may be united to another stock, one of

the two queens being removed; if taken from the other hive, it must be fumigated first.

It is not difficult to find the queen bee, in order to remove her from one of the hives united to another stock. When fumigation is practised, she is easily discovered and recognised by her greater length of body, which is of a blackish colour above and of a yellowish tint beneath, and by being of a larger size sometimes than the other bees; and when a hive is tapped the queen is generally the first to venture out; but when fumigation is the adopted means, as she inhabits the upper part of the hive, she is among the last to fall.

When hives are fumigated for the purpose of uniting two weak stocks, two persons should act in the matter, each taking a hive and fumigating it, so that both stocks should be at the same time in the same condition of stupefaction. When fumigated, the hive should be closely covered with a cloth to prevent the smoke escaping; and when the hives are united, it is well to confine the bees in the hive for that night and the following day; but they must not be deprived of air. A small piece of perforated zinc placed in front of the entrance to the hive will answer all purposes, and it may be removed the following evening, and the hive uncovered. The bees will very likely leave the hive for a short time, but they will find it too late to work, and therefore return to the hive. It is well to be at a distance when the bees are first set at liberty, as they will be enraged at the disarrangement of their habitations and domestic concerns; and as they are naturally very irritable, they may attack you in a body, which might prove serious if you are unprotected; therefore the precautions and warnings that are mentioned are not without reason.

The most suitable time of the year for uniting weak to strong stocks, is from the middle of August to the end of September; but bees must not, at this late season, be removed from straw hives to boxes; for bees seldom recover sufficiently the effects of fumigation to go on with their work, if taken from a warm hive and placed in a cold box. If necessary to move as above mentioned, it should be done in a room heated to about 60°, and after being allowed to remain in it for twelve hours, the bees will recover, and may be taken to their stand.

If the keeper of bees desire to use the fuzz-ball fumigation, the best way is to put the ball into a strong piece of paper, and squeeze it as tightly as possible, tie it up, and put it in an oven moderately cool, and there let it remain until it is as dry as tinder. Put a piece of the tinder about the size of a hen's egg into the tin box of the fumigator, and on no account omit the honey-and-ale sprinkling. When thus fumigated, the combs containing the honey may be cut away from the hive, leaving sufficient in the hive for the winter food of the bees; the outer combs are the best to remove.

When bees are kept in the neighbourhood of heaths, the hives may be advantageously "shifted," as it is termed, and given into the care of persons living near or on them, so that the bees may procure a supply of food after theirs has failed near their home, and by this means a second honey-harvest may be obtained. This plan is followed near Edinburgh, and shepherds living on the Pentland Hills take charge of hundreds of hives for bee-keepers at a distance.

In the middle of August, the bees' food begins to fail, and then is the time to move them, if convenient, to a heath, to feed on the heather blossom; but previous to removal the condition of the hives should be ascertained, those well stocked with honey should be deprived of it, as directed in previous pages, some days previous to removal, to give the bees time to fasten any loosened portion of comb that is left.

If the beehives can be taken by water, it will save them from being shaken; railway travelling would be unsafe, as they would be too carelessly treated by porters; land-carriage must be done by means of poles, to which the hives must be fixed, and carried on men's shoulders, and the journey will have to be made in the night, and the bees allowed to go out and feed by day; but not until they have travelled ten or twelve miles, or they will try to find their way home, and lose themselves; but a moderate distance leads them to become reconciled to their new situation.

When moved by water, the hives should be taken from the boat and placed on stands at some distance from the water before the bees are let out, or they will fall into the water and be lost by thousands. Shepherds charge one shilling or eighteenpence for the care of each hive during the season, and it is better to give a trifle more, to ensure good care being taken of your bees; for if placed too near other hives, a great loss may be sustained by wars and bee-battles; and when the hives are about to return home, their weight and condition should be ascertained and all the honey that can be spared removed.

The general examination of hives should take place in September, and never under any circumstances be left till October, and if the season is likely to be severe, it should be done earlier than September; but this examination is made, not for the purpose of taking honey—of which the bees, unless sent to a heath, can never be deprived so late in the season—but really to ascertain the state of the hive, and see which can, and which cannot, support itself without help during the winter.

In some hives contrivances are made for making this examination; but in the ordinary hive it must be done by weighing, the weight of the hive and probable number of bees in it having been previously ascertained; and if in weighing, the stand could be included in the weight by being raised *with* the hive, but the weight of them known first—that is, before the hives have been placed on them—it would save the bees much trouble and annoyance: since in raising a hive from the stand the cement called *propolis*, with which the poor little insects have fixed the hive to the stand, is destroyed, and they have all their hard work to do over again.

For the support of a hive during the winter twenty pounds of honey must be left in the hive; but if two hives are united, an additional weight will not be required, but the contrary; for the more abundant the stock of bees in autumn, the richer and the better able they will be to work in the spring, the more forward they will be in summer, and the greater will be the profit.

The weight of honey must be exclusive of that of the hive, bees, and stand; twenty pounds of honey must be left for the winter provision of a hive of bees. About 5,000 bees weigh sixteen ounces or one pound, and from 15,000 to 20,000 bees constitute a strong hive, therefore the bees would weigh about five pounds; and if it is found upon inspection, by making calculations and deductions, that the stock is under weight, the bees must be supplied with food, or two hives united, and the latter would be the best plan to adopt. But these directions are only applicable where a second, or perhaps a third, harvest of honey has been taken from the hive, thus depriving the bees of their winter food.

Heather honey is far more valuable than any other, therefore the trouble of "shifting" is well repaid when it can be undertaken by bee-owners without any very great difficulty or inconvenience.

When weighing hives to ascertain the quantity of food left for the winter provision of the bees, it must be remembered that old hives will be heavier than new ones by reason of an accumulation of bee-bread, and the cast of sloughs—which had formerly served as envelopes for the young, and two to five pounds should be allowed for these; although they should not be allowed to accumulate and thus take up the space required by the bees.

BOOTS AND SHOES.

III.

LADIES' boots may be classified under three distinct heads. The first, because more important, are those which are used and made exclusively for walking; next, those which are manufactured especially for dress; and thirdly, those which are used as house boots or slippers.

Fig. 1.

Fig. 2.

Those who have the means of purchasing a pair of each of these, should have also the judgment to purchase with benefit to themselves. As in many other trades, it is not sufficient to tell the tradesman what kind of boot or shoe is required. Almost all makers have their own notions, in accordance with which they endeavour to persuade their customers to buy. There are, also, a variety of manufactures suiting the taste of various classes of persons, each of which is looked upon as a "leading article," which "leading article" is certain to be offered, unless specially countermanded. We shall endeavour to guide our readers in understanding a few "points," and, to that end, shall commence with walking-boots.

Fig. 4.

Walking-boots should be selected with reference to the pocket and the season. If the pocket serves, then the season will suggest a summer or a winter walking-boot. If the pocket does not serve, then such a boot should be purchased as that which, whilst it does not look heavy and clumsy in summer, should it have to do duty in the winter will resist rain, snow, and cold. In selecting a boot of this general and accommodating kind, the following particulars should be observed:—It should not be short; and, when put on for the first time, the edge of the toe of the boot should be at least half an inch beyond the toe. It should be fairly broad, that is, it may feel a little tight across the toes, but should not pinch. All boots and shoes tread out in breadth as they are worn; and, if it be desirable to keep a good shape to a boot which is to be worn by the owner until it is completely worn out, it must be a little tight *across* the toes at first. If the boot is not likely to be worn hard, these remarks do not apply, and the boot should be easy, both in length and breadth, from the first.

Fig. 3.

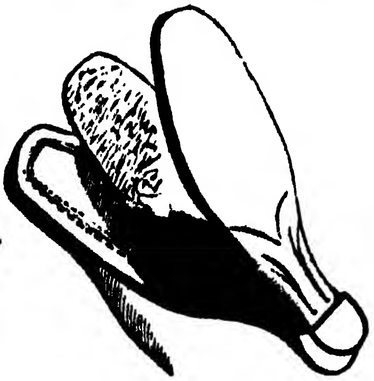


Fig. 5.

It should be of a medium thickness in the sole; if too heavy, it will look clumsy and inappropriate in summer; if too thin, it will not resist the weather in winter. Nothing looks so absurd as a person thus inappropriately clothed. Those who have not the means with which to suit their clothing to the seasons should carefully select those garments which will suit both. A lady picking her way through the slush, in a pair of kid summer boots, with Wurtemburg heels, at the same time that she carries her umbrella and wears an expensive waterproof cape, is the greatest exponent of deficiency of thought that it is possible to imagine. The same may be said of the reverse, when, in a gay and light summer dress, a young person is seen in a pair of heavy winter boots. Yet we have seen things of this kind very often. A girl is about to purchase a pair of boots at the commencement of winter; she thinks she should like to be in the fashion, and the shopkeeper thinks he should like to sell his summer stock; consequently, she is soon persuaded to buy a pair of boots, elegant in their way, and at a low price, but she finds that they were not intended for winter wear; and, after having bought in haste, without judgment or forethought, is constrained to repent at leisure.

Something more than smartness in appearance is to be considered; and something more than temporary inconvenience is frequently the result of wearing boots not adapted for inclement seasons. Dampness of the feet is frequently the precursor of serious, sometimes fatal, disease; and the mischief may be done, even if the boots and stockings are changed immediately on reaching home.

In selecting a boot for general wear, seams and machine-stitching should be, as far as possible, rejected. All kinds of stitching, more especially machine-stitching, involve time which must be paid for; and it is better, if a boot is purchased for wear, that the time paid for machining

or ornamentation should be put into the leather. Again, a boot which is cut up into a number of pieces—which is composed of a number of scallops, and has toe-caps and straps which are blended with white, so as to make a fine show in the window—has many objectionable features, as far as wear is concerned. Machine-stitching is not by any means so perfect as hand-stitching in the closing of the uppers of boots; it is apt to weaken the leather, and is liable to rip sooner than hand-closed work. It is sometimes introduced to make an inferior article look fine and dazzling; and, by this means, to induce the too confiding customer to buy for the show of stitching, rather than for the good quality of the material. White bindings, showy rosettes, bows, and buckles, and almost every kind of ornamentation of a loose and cut-up nature, are to be avoided, if the conditions mentioned in the commencement are to be complied with.

Some remarks on the purchase of boots may be acceptable here. In its proper place we shall give directions for the preservation of boots, but here we must conclude our advice as to the kind of boot which should be selected by those who can only afford one or two pairs, by indicating what means are the best to be used in purchasing.

A respectable shop, with a good stock, and an intelligent salesman and master, is the best place. Much care is required in selecting stock. Very few of the so-called boot and shoe-makers make their own goods. They buy them from a wholesale manufacturer, and in this purchase a considerable amount of skill is required in selecting the goods of that leather which will be the most suitable for wear. Give as good a price as you can. In this you will be the gainer rather than not, even if you have but little money; cheap articles are not those which cost the least amount of money, but those which give the most value for the money. In the manufacture of boots and shoes the amount of value given for a given price is adjusted to the greatest nicety; each part of the skin from which the goods are cut has its superior and inferior parts, and after the goods are cut they are carefully sorted into three or four different qualities, in accordance with which assortment they are made up into higher or lower priced goods; so that the only chance a person has of getting a pair of boots of a shilling or two more value than is paid, is the very improbable chance of a better kind of leather getting into a basket where inferior leather is put. As a general rule, avoid "sellings off," and "alarming sacrifices," and "retirements from business."

We append two sketches illustrative of the kind of boots we allude to. Fig. 1 is a plain boot, with kid-calf top and toe-cap; it has no straps up the front or back; the only ornamented part is the toe-cap, and the less ornamentation it has in it the better. Its simplicity secures it from much change, and if long wear and frequent cleaning is to be its lot, it will bear it without deterioration to the end.

Fig. 2 is a far more elegant production, and would be very pretty and nice to wear, other things being equal—that is to say, if one could replace it the moment it got shabby; or spend money on a new rosette as often as required; and that it would not have to undergo hard wear. But the necessity for constant repairs, induced otherwise than by fair wear, is an unmitigated nuisance and expense; and as our object is to point out the best way of combining utility and neatness of appearance, we prefer to describe more durable, if somewhat less attractive, articles.

If the amount of boots is only limited by the wants of the consumer, and a winter boot for walking, a winter slipper, or house-shoe for home wear, a summer boot for walking, and a summer slipper, as well as dress boots and shoes—in fact, if the supply of boots and shoes is of no importance, but elegance and appropriateness to different occasions only have to be studied, free scope may then be given to the wishes of the consumer, and we shall endeavour to guide these desires, so that they may not be disappointed, and that the most favourable selection of foot clothing may be made by the purchaser.

We shall first proceed to a consideration of winter outdoor or walking-boots of the best class, dealing first with ladies' boots, which we shall show may be made strong and most serviceable, without necessarily impairing that neatness of appearance which ladies naturally desire to characterise every article of dress. English women may deserve the compliment paid to French ladies, of being *bien chaussée*, without sacrificing that security and healthful solidity of make which is necessary to preserve health. In a future article we shall have some observations to make respecting boots for men, and the mode of construction best adapted for general wear at different seasons of the year.

Winter walking-boots should be solid and weather-resisting; they should not be made of many parts: the simpler the construction of the uppers the better. The heel should be rather high, and the sole may be what is technically called "clumped," that is, a half-sole put on either between the insole and outer sole, or "French clumped." We shall discuss the character of heavy winter soles more fully when we come to gentlemen's work. All ladies who desire an extra good protection for the feet in winter walks will do well to purchase a pair of clumped soles, but an ordinary thick sole will answer all the general requirements of winter wear.

A cork boot has for some years been a great favourite with ladies, and if any distress arise from cold in the feet, produced by damp, nothing can be more effectual than a cork sole, of which there are several varieties. The cork boot, as ordinarily made, we shall now proceed to describe and illustrate (Fig. 5).

By a cork boot is understood a boot with an intermediate layer of cork. There are several technical ways of applying this layer of cork to the inner part of the sole. Some of these possess more damp-resisting capabilities than others. The most elaborate of these is the French cork-boot, in which a welt of cork is sewn in with the ordinary welt, and over this the cork insole is fastened. If the expense of a cork insole is objected to, a "filling-in" of felt or tarred cloth will keep out wet. In our general remarks on waterproof boots, and the use of waterproof materials in boot manufacture, we shall discuss the merits of waterproofing materials generally; we therefore now proceed to a consideration of the mode of fastening.

The object of warmth will be best obtained by a lace-up front ("Balmoral" boot is the modern name of this old-fashioned method of fastening); and if it be made with a "half-bellows tongue," all the better. There are two other kinds of fastening which are better than side-springs, and of these we give illustrations. Fig. 3 is a very neat and warm method of fastening, and, as a button-boot, is not subject to any objection as to the time it takes to fasten and unfasten, which is applicable to the ordinary button-boot. The other (Fig. 4) is a French method. We apprehend neither will require any further explanation than that afforded by the engraving. The advantages of the first are that it is more close and less likely to get out of place, with no fear of laces or hooks breaking.

We now proceed to the consideration of ladies' boots for dress wear. These are made of various materials, and with respect to the main feature, we cannot do better than advise our readers to let the manufacturer give that which he looks upon as being the best. One or two remarks on the colours and general characteristics will, however, be in place.

Elegance, in the matter of boots, is attained by simplicity; no refined person will desire to look gaudy. Hence the colours for dress boots should be unassuming. They are generally made of satin or kid, and are trimmed and fashioned as the custom of the time

dictates; white and black kid, with very slight gold or red ornamentation; white or black satin, with fringe ornamentation of the same colour. A red "rand" heel is admissible sometimes, and with such almost any coloured dress may be worn with effect; but if the dress be of any gay or decided colour, boots of the same, in kid or satin, will be appropriate.

BEES, AND BEE-KEEPING.

IV.

Food for Bees.—The bee-bread, which we mentioned at the close of our last article, should not be allowed to accumulate, as it will so injure the hive that the bees would soon be destroyed; these substances should therefore be removed in the spring. Fumigate the hives and render the bees insensible; turn up the hive and cut away half of the old comb. The following spring take away the remaining half. The space left will have by this time been filled with a new comb, and by this annual attention there will be constant re-filling with new combs, and your stock will be well preserved; and the straw hive, if washed with a thick coating of Roman cement, will last a very long time. Never use paint: it will injure the bees.

It will be remembered that a hive must weigh (after deducting the weight of hive, and stand, and bees) twenty pounds, and if under that weight, food must be supplied to the bees for the winter season, and the examination as to quantity of provisions must take place in September; the kind of food therefore proper to give the bees must be understood. Honey is the best, if it can be spared; but if not, boil sugar and ale together gently in a clean tinned vessel over the fire—one pound and a half of sugar to a quart of ale, boiled for five minutes, and skimmed, and when taken from the fire a teaspoonful of salt should be added to the syrup. It is, however, a bad plan to feed bees in the winter, because it induces them to come down to the bottom of the hive, where they get exposed to the cold and perish; but by an early examination in the autumn, and the union of weak hives, with proper feeding there, if necessary, the winter management may be simplified.

If in a hive there is a large number of bees and very little food, this may be caused by the loss of the queen, and they must be united then to another stock, and if it be winter they must be abundantly fed; but a celebrated bee-keeper says that nothing will save the bees, if the above condition occur in the winter. It is very bad management to defer feeding the bees until they are in absolute need of food; if they are not fed several weeks before they are reduced to that state, they will be too weak to feed.

One plan of feeding bees is to put the honey or syrup in a shallow box, and to lay over it a piece of stout paper perforated with holes, through which the bees can suck the syrup without falling into it, and the box should be fixed to the entrance of the hive; the bees will soon feed, and take the food to the cells. By fixing the feeder to the entrance of the hive, lifting the hive is avoided, and the temperature not reduced.

Some bee-keepers feed the bees with barley-sugar. There are many clever contrivances for feeding bees, but it is best to feed them on the top of the hive; and for this purpose a zinc saucer, having a central aperture, an inch and a half in diameter, with a raised edge, fits into the orifice at the top of the hive. This saucer having been filled with food, covered with a piece of thin wood pierced with small holes, the slide or bung which closes the orifice at the top of the hive is withdrawn, and the bees ascend and feed; the saucer being covered with a bell-glass or small hive. Some feeding-saucers are contrived to allow of fresh food being poured into them without moving them or the glass cap; but the ___ ingenious feeding-trough is formed of a large number of small cylinders made of thick cartridge paper, about two-thirds of an inch in length, closely fixed together, forming a mass like a piece of honeycomb. The food is poured into the saucer, and this artificial comb is placed over it.

To supply the bees with food in the autumn, and also to ascertain the condition of the hives, so as to unite them if requisite, are the most important considerations connected with bee-keeping; for by care in these matters you preserve the health and strength of the bees during the winter months, and enable them to carry on their spring duties with success.

In a large straw hive, there should be left at the autumnal honey-harvest, from twenty to twenty-five or even thirty pounds of honey, according to the size of the hive, exclusive of the weight of hive, stand, and bees; if found deficient in weight, the bees must be fed, but a skilful bee-manager would not be obliged to feed his bees in autumn. Those who use hives too small render the swarms too weak, and too feeble in point of number, to acquire sufficient wealth during the proper season for doing so; or if from them there has been injudiciously taken too much honey, at a period too late in the season to admit of the bees replenishing the hive, then they must be fed; but a large hive saves the trouble and expense of feeding.

Treatment of Bees during Winter.—The proper quantity of food having been secured to the bees, the little entrance to the hive should be nearly closed, leaving just sufficient space for one bee to go out at a time; and in November the entrance should be only open sufficiently to allow the air to enter, and the hives covered up with matting or dried ferns to preserve them from rain, frost, cold, and any rays of sunshine that may in a winter's day tempt the bees out into the cold, to the danger of their lives, and, indeed, of the whole hive.

The coverings should not be removed before March, but hives having a coating of Roman cement are by that means greatly protected from heat and cold. In snow the entrance should be entirely closed, and dampness in all ways avoided, exterior and interior; and the latter is as dangerous as the former. To rectify the internal moisture generated in the hive, careful ventilation must be resorted to, by placing a bell-glass, covered with flannel, over the aperture on the top of the hive or box, removing it from time to time, and wiping away from its interior the damp formed by condensed vapour. No doubt the old-fashioned hives in their rough-straw state allowed of ventilation, and saved a great deal of trouble; but improvement was necessary, as if the old straw hives allowed ventilation, they also admitted insects to destroy the bees.

During the winter the bees should be kept in a torpid state, and at a regular temperature, dry, dark, and quiet, as, in fact, they would be in their own natural nests; and, indeed, in all bee-management the laws of nature should be observed and carried out as far as possible.

The coverings of the hives should in spring be gradually removed, according to the weather—when the currant and gooseberry bushes are in bloom, the bee-winter is over; the condition of the hive should also be ascertained, but the bees must not be allowed their liberty too soon, or in unsettled weather; the entrance of the hive should be westerly, but when the summer, their working season, arrives, all restraint must be removed, and the bees left to manage for themselves.

If necessary to feed bees in the spring, April is the time to supply the young bees with nourishment, and many hives have been lost in the month of May through neglect. The time for transferring stocks from hives to boxes is in March; they must be cleaned first and smeared with honey, and also supplied with food in a feeder. In

the warm weather bees must be shaded from the sun, as well as in the winter protected from the cold.

If properly attended to, bees will not be very subject either to disease or destruction from insects and small animals; but they suffer from diarrhœa and dysentery from eating candied honey, which is honey that has been left too long in the hive, and thus from carelessness the bees are injured; but by adopting the periodical examination and removal of the old combs, as directed, the stale, sour honey would not be left to destroy the bees and frequently induce them to quit the hive.

The bees so well know the ill effects produced by stale honey, that they turn it out of the combs, and when the bottom board of the hive is covered, the poor little insects cannot free themselves from the mass; they can neither get out nor into the hive, and little help can ever be afforded to them in this sad condition. They may be swept from the hive with a feather into a tub of tepid water, and allowed to remain there until insensible, and then united to another hive that has been served in the same way, when they recover a little. The plan has succeeded in some cases; but the carelessness that causes so much suffering to the poor insects should be guarded against, and that is the best remedy; and it would seem that most of the difficulties attending bee-keeping are really caused by want of proper attention, and this may be proved by the successful manner in which bees are kept, with no trouble or difficulty, by most of the labouring classes in many parts of England. In Belgian villages there is scarcely a little farm without its dozen or more of common old-fashioned straw bee-hives, and certainly if a Belgian cottager can keep bees, an English lady can do so.

In a large apiary it is necessary to number or name each hive; they must be marked, and the numbers or names entered in a book; and an account kept of work done with the hives; and the quantity of honey taken and contained in the hive at last examination, must all be carefully set down, with all requisite particulars.

The quantity of food eaten in the hive by bees is about one ounce a day, whatever the number of bees; as before noticed, two or three swarms united in the autumn will consume no more honey through the winter than one small hive, on account of the heat produced by the larger number of bees; warmth is an equivalent for food.

It is a bad practice to put a new swarm of bees into an old hive, as there will be eggs of the honey moth in the old comb, which will hatch, and destroy the bees; but these moths, as well as the slugs, may be caught by spreading a mixture of sugar, home-made wine, and rum on the walls and stems of trees near the hive.

The entrance to a hive should be small, to keep out intruders, a quarter of an inch in height, an inch long in winter, and four inches in summer; perforated zinc doors are occasionally used. To prevent the hive sinking over the aperture, and thus stopping the way, the entrance should be made by cutting into the stand of the hive, as well as the hive itself.

A wasp's nest may be easily destroyed by dipping a piece of flannel or cloth into spirits of turpentine, and placing it at the entrance of the nest; in one night the insects will be destroyed. The evening will be the time to apply the turpentine; they are then at rest. It may seem cruel thus to deprive the wasps of life, but if their nest is near the bee-hives they will prove very destructive to the stock.

The Honey and Wax.—When the season for taking the honey arrives, and each hive has been deprived of its produce, remove it, with any previously collected, in bell-glasses, or otherwise, to a room without a fireplace or chimney, if possible; if not, the chimney must be well protected, as bees will even descend one to follow the honey, which they are able to scent from a considerable distance. Close also the doors and windows, having previously arranged in the room all the implements you will require; viz., some large glazed earthen vessels, clean new horsehair sieves, a strainer, clean linen cloths, and water for washing your hands. Hay burnt at the door, to keep away the bees, is a plan well to be adopted.

The first thing to be done in the treatment of the produce of the hives is to examine the combs, and to free them from dirt, young bees, and other extraneous matter; having previously well washed your hands, after moving the combs and hives, as the least thing adheres to the honey and spoils it.

When thoroughly examined, the combs must be cut horizontally into pieces of an inch wide, and laid on the sieve over one of the glazed earthen vessels; and when all the honey has dropped from the comb that will drop, it must be placed in the clean linen cloth, and squeezed over the earthen vessel; the honey thus squeezed will be second-class honey; that which drops from the combs is styled virgin honey, and is equal in purity to that obtained from bell-glasses. When all the honey is obtained by dropping and squeezing, the two kinds should be covered up, and the combs put into a vessel alone; and all the cloths and utensils carefully washed; leaving nothing about that may attract bees to the apiary, or battles and destruction of the hives near may be the consequence.

The next matter to attend to is the wax. The combs must be placed in a clean vessel, with as much soft or distilled water as they will float in, and the vessel placed on a clear, not too hot, fire; it must be carefully watched, and occasionally stirred, until the combs are quite liquefied; then strained through a fine canvas bag into a tub of cold water. After the water has flowed through the bag, the wax will require hard pressure to squeeze and induce it to follow, and a press is required for the purpose. If the expense of a press made for the purpose be objected to, the wax may be squeezed through the bag in the following manner: Take a piece of smooth board, long enough to reach from the bottom of the tub of cold water to the waist, so that it can be firmly rested against and fixed. Upon this inclined plane lay the bag when yet filled with the hot water and wax; bring the top of the bag over the end of the board, so as to hold it firmly and prevent it from slipping into the water. It is a good plan to have a wide tape run through a hem at the top of the bag, and long enough, after drawing it close, to form a stirrup for the foot, by which means an additional power will be gained for keeping the scalding strainer in its proper place on the board; then, by pressing the bag and its contents with any convenient roller, the hot wax will ooze through the bag, and run down the board into the cold water, on the surface of which it will rest in flakes.

When all is squeezed through the bag, the wax must be collected from the water and board, and put into a clean saucepan, on a little water, to keep the wax from burning, and carefully melted; it must not be left to boil over, or it may set the place on fire; therefore it should be melted very carefully over a low fire, and the dross skimmed off as it rises to the top; when melted and clean, the wax must be poured into small shallow pans that have been rinsed in cold water to prevent the wax sticking, and placed, covered over with cloths or pieces of wood, where the wax will cool slowly; the more slowly it cools, the more solid it will be, and therefore the freer from cracks and flaws.

Wax may be bleached by re-melting it and running it several times into thin cakes, suffered to cool, and exposed to the influence of the sun and air.

The sale of the honey and wax separately is much more profitable than selling the honey in the comb, which plan saves a great deal of trouble, no doubt, but if profit is a consideration, a little labour will not be objected to. The purer and larger the cakes of wax, the higher price it

brings; the same concerning the purity of the honey, which may be clarified by placing the vessel containing it in hot water, and continuing to skim as long as any scum rises.

To preserve honey, it should be stored in jars, well secured from the air, and kept in a dry place.

Ninety pounds have been made in one year by a bee-keeper in a favourable position of life, and forty pounds from ten stock-hives by a gentleman in Scotland, which will serve to show what may be made by bee-keeping, with care, attention, and perseverance. The occupation seems well worth the trial, especially as such large profits may be made from so small an outlay. Half-a-dozen straw hives can be purchased for ten shillings and sixpence; adapting boards, nine shillings the half-dozen; feeding-bottles, two shillings each; fumigators, one shilling; bee-dress, one shilling and threepence; super hives, with hole at top, nine shillings the half-dozen; observatory super hive, with glass top and straw sides and cover, four shillings and threepence each; fumigating bellows, five and sixpence; cottage hive, with window, bell-glasses, floor-board, and cover, one guinea; honey, for feeding; barley-sugar, do.; fungus, for fumigation; thermometers; zinc slides; ventilators, &c.

General Rules.

1. Never suffocate the bees.
2. Do not take too much honey from them at the honey-harvest.
3. Keep the bees in such hives as will admit of extending their accommodation when needful.
4. In autumn unite weak hives, and leave the bees sufficient food for the winter.
5. Keep the hives and bees confined, dry, and quiet during winter, and in spring again examine, and feed such stocks as require it.

HOUSEHOLD CHEMISTRY.—XVI.

THE METALS.—IRON.

IRON is not only more useful than any other metal, but is also found in greater abundance. It is usually met with in the condition of either an oxide, a carbonate, or a sulphuret. Iron is also occasionally, although rarely, met with in the metallic state. The masses of metallic compounds known as aerolites, that occasionally fall from the sky on the surface of the earth, contain metallic iron in union with nickel.

Iron when pure possesses a greyish-white colour, inclining to blue, and admits of a high degree of polish. It is a very malleable metal, and is so ductile that it may be drawn out into wires of extreme fineness. The toughness of iron is so great, that a wire only one thirty-sixth of an inch in diameter will support a weight of sixty pounds without breaking.

Iron possesses the most useful property of becoming soft and paste-like when heated to a white heat, while almost all other metals—except a few, such as platinum and sodium—when exposed to a sufficient degree of heat, pass suddenly from the solid into the liquid state. Owing to this invaluable property of iron, we are enabled, by the process called welding, to convert separate pieces of iron into one solid piece. This is done by heating the pieces of iron to what is known as a white heat, then sprinkling sand on them, and laying the portions we wish to join in contact, one on the other, on an anvil. The heated pieces of iron are then hammered together and cooled in water, when, if the operation has been properly performed, they will be found to have become perfectly united.

When metallic iron is exposed to the action of a damp atmosphere, it absorbs oxygen and becomes rapidly covered with spots of rust. When a spot of rust is once formed, it rapidly extends, owing to a kind of galvanic action which is then set up. It has been found that the presence of carbonic acid in the atmosphere assists in causing iron to become rusty, and that wet alone is not sufficient; since it has been proved that iron will not rust when placed in distilled water that contains the carbonates of potash or soda.

Iron has an affinity for oxygen, so great, that when that metal—in the state of minute division in which it is obtained by acting on oxide of iron by hydrogen in a red-hot tube—is sprinkled in the air, it takes fire spontaneously. The same thing occurs when a piece of steel is struck with a flint, sparks being produced by particles of metal, detached in a heated condition, combining so rapidly with the oxygen in the air as to enter into combustion. If we do this over a large sheet of white paper, so as to collect the black patches of oxide produced, they will be found to consist of what is called the magnetic oxide of iron—so called because capable of being attracted by the magnet.

That well-known ore of iron, commonly known as the loadstone, consists of this oxide. It is one of the most valuable ores of iron, and consists of seventy-two parts of iron, and twenty-eight of oxygen, in each hundred, being a mixture of the protoxide and peroxide, and when smelted yields metal of the best description.

Some kinds of clay contain much iron: when bricks are made of it, they assume a red colour when burnt, owing to the iron contained in it becoming converted into the peroxide.

When sulphur and iron filings are mixed together and moistened with water, they become converted into what is known as the sulphuret of iron. A similar compound may be produced by bringing together an iron bar, heated to whiteness, and a roll of brimstone. Sulphuret of iron is found very extensively in nature, and is commonly known under the name of pyrites, or firestone. It derives its name from the fact of its giving out sparks when struck with a piece of steel, similar to a piece of flint. This ore is never employed as a source of metallic iron. It is, however, extensively used in the manufacture of alum, copperas, sulphuric acid, Spanish brown, &c., and also as a source of sulphur.

When, by any fault in the manufacture, sulphur is present in iron, it has the property of rendering the iron brittle when heated.

The most important compounds of iron, when considered in relation to the household, are those which iron forms with carbon. These are well known to us under the names of cast-iron and steel.

When any kind of ore that contains iron in the condition of a carbonate or oxide is broken into small pieces, mixed with coal, and introduced into a powerful blast furnace, in which it is subjected to the most intense heat, the metal becomes reduced into the condition known to us as cast-iron. This substance is met with in two conditions—the white and the grey. White cast-iron is extremely brittle, and consists of about four parts iron to one of carbon; while the grey variety presents a mottled appearance, and is both much softer and more easily acted on by acids than the white. Owing to its containing carbon in its composition cast-iron possesses the property of melting more readily on the application of heat, and may be cast in moulds. The union with carbon also gives it another valuable property, by which it is peculiarly fitted for this purpose. It is, that cast-iron expands at the instant of entering the mould (owing to its particles assuming a crystalline structure), so as to obtain a more perfect impression. As it cools, however, it again contracts, so as to occupy less space than the mould in which it was cast.

HOUSEHOLD AMUSEMENTS.—XXXII.

THE MAGIC LANTERN, AND HOW TO WORK IT.

At first a mere toy, the magic lantern is now a really scientific instrument; and not only a source of endless gratification alike to young and old, but a valuable aid and adjunct to popular instruction. Its invention has been ascribed to Roger Bacon; but there is now but little doubt that it was brought to its present form at least, if not actually originated, by Athanasius Riecher, some time in the sixteenth century. Although we have said its present form, it must not be for a moment supposed that even up to a late period, the lantern was nearly so perfect an instrument as it is now; as in modern times many eminent scientific men have contributed various improvements which have resulted in a perfection of defining power and illumination which it seems well-nigh impossible to surpass.

A great impulse was given to the art of lantern-making by the introduction of photography as a means of making the small pictures required for exhibition. Those formerly used were produced by hand; and when it is considered that they were enlarged from a diameter of three or four inches, to ten or twelve feet, it will at once be evident that great care and delicacy of manipulation were required in their production. This, of course, made really good slides exceedingly expensive—indeed they were altogether beyond the means of persons of limited income—and the result was that common, ill-drawn, and vilely-coloured pictures were the general rule, and the lantern exhibition became a thing of horror to any person having an ordinary amount of taste. Photography has changed all this; and at the present time good photographs may be procured at a less outlay than that involved a few years since for the purchase of uncommonly bad drawings. The whole world has been laid under contribution by photographers, and the natural features of different countries, their great cities, mountains, lakes, waterfalls, and their various monuments of ancient and modern art may now be exhibited in our drawing-rooms as transcribed by the pencil of Nature itself.

As nothing is too large for the lantern, so also nothing is too minute. The wonders of the microscopic world—the "infinitely little"—have also been faithfully copied by the same almost unerring means, and the wing of the smallest fly, the structure of the most delicate moss, or the arrangement of the globules in the blood, may be exhibited on a ten or twenty feet disc to scores or even hundreds of persons at one time.

Under these circumstances, the popularity of the magic lantern is not surprising, and as it is increasing day by day, we propose in these pages to give such rules and instructions for their management as may enable even those who are totally unused to such matters to work and exhibit them in the home circle, not doubting that if we can induce "papa" to purchase an instrument, and frequently use it, we shall at least obtain the thanks of the more juvenile portion of the family.

Magic lanterns may be procured at all prices; but, as in all other matters, a really good instrument is somewhat expensive. If we leave out the toy-lanterns, which are not of much use, the smallest size which can be recommended is that with the two-inch condensing lenses. This, if properly constructed, will project a disc of light having a diameter of from four to five feet. The next really useful size is that in which the condensing lens is three and a half inches in diameter; and a good lantern of this size will yield a well-defined picture of ten feet. It should be remembered, however, that as the disc is increased in size, the amount of light is diminished; and, as a rule, it is better to work with a picture of moderate dimensions, and ensure its being brilliantly lighted, than to produce a larger disc which is ill-defined and badly illuminated.

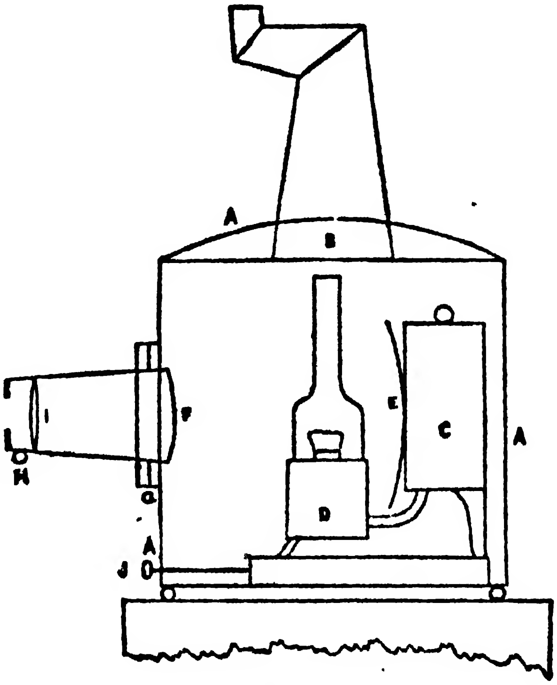


Fig. 1.

In order to render our instructions intelligible, it will be necessary here to give a rough diagram showing the construction and arrangement of the various parts of the lantern. Fig. 1 shows the instrument in section. A A A is a box of tin, or, in the best lanterns, of wood lined with tin. B is the chimney for carrying off the heated air from the lamp, and it is bent simply to prevent the escape of light. C is the reservoir containing the oil to supply the lamp, D. E is the reflector used to project the light through the condensing lens, F. G is the slide-holder into which the small pictures are inserted for exhibition. H is the rackwork used for adjusting the object or magnifying lens marked I. J is a wire handle connected with a tray in which is placed the lamp, and by which the lamp and reflector are moved backward or forward, as may be required. It should be distinctly understood that this diagram is not intended to give any idea of the shape of the lenses, but merely the general arrangement of the lantern. In purchasing the instrument, it will be better to apply to a good optician, and trust to him, than to buy a second-hand lantern, which perhaps is imperfectly made or seriously injured. The price will vary, according to the size and finish of the instrument, from two to five or eight pounds; and it is far better to buy one of good quality at once, than to have a second-rate one, which will be always costing money for repairs.

We will now suppose the lantern purchased and ready to be set up at home.

The first thing required will be a sheet or screen of some white material, which must be stretched perfectly tight and without folds, either upon the wall, or across the opening made for folding-doors. If the lantern is to be in the same room as the spectators, this screen is better used dry, and cannot be too stout or opaque. If, however, the pictures are to be shown through the screen, a more transparent medium may be used with advantage, and damped to increase its transparency. The size of the screen will, of course, vary with that of the lantern, and the picture should be kept well upon it,

and not allowed to fall over its edges. The next thing will be to prepare the lamp. This will, in a good lantern, be of the argand form, with a circular wick, which must be fixed upon the inner ring by means of the tapered stick supplied with the lantern. The reservoir should then be filled with the best sperm oil, which has previously been well warmed, and rendered perfectly fluid. The wick should be thoroughly dried, and screwed into position, and when it is quite saturated with oil it may be ignited all round. Should the wick be too long for the lamp, a portion may be roughly removed, and when the upper end is slightly charred, it must be cut perfectly even with a pair of very sharp scissors. The glass chimney having been previously cleaned and polished, may now be placed in position, and screwed on; but the lamp should not be turned fully on till the glass becomes quite warm, in order to avoid risk of breakage. It cannot be too distinctly remembered, that the whole success of the exhibition depends upon the employment of a clear and brilliant light, and that any trace of smoke upon the glass will very materially affect the results. We should advise the tyro at this sort of work to carefully read the HOUSEHOLD GUIDE paper on household lamps (page 202, vol. ii.), where he will find many useful hints. The lamp being thus prepared, the reflector should be very brightly polished, by means of a soft leather and a little whitening, and placed in position behind the lamp. The condensing lens should now be unscrewed, and polished; and it is better to slightly warm it before it is replaced. If the object-glasses are dirty, they also should be cleaned; and it should always be remembered that any dust, dirt, or smoke, upon any of the lenses, will materially impede the passage of light from the lamp, and preclude the possibility of anything like a brilliant picture upon the screen.

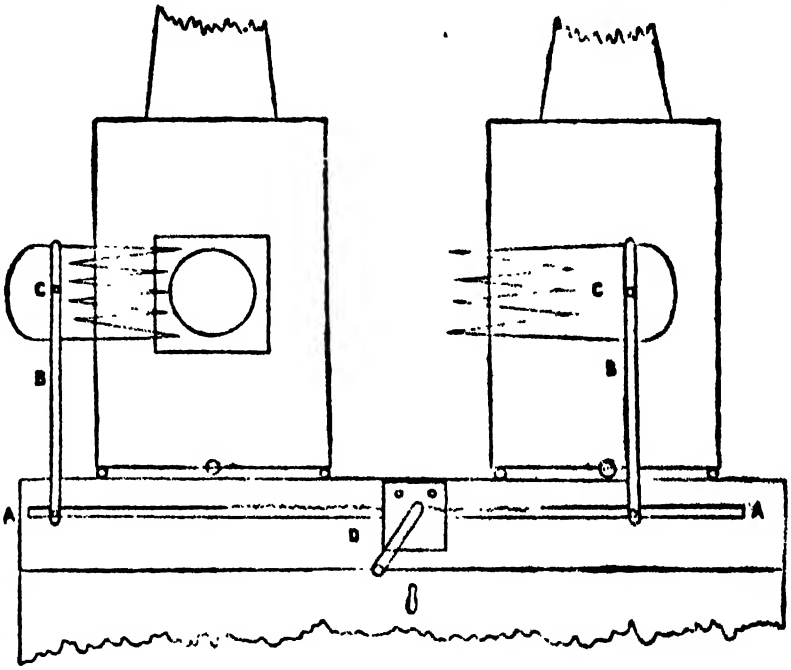


Fig 2.

The lamp thus prepared should now be placed in its proper situation in the lantern, and the whole apparatus set firmly upon a table of sufficient height to bring the illuminated disc into the centre of the screen. The best lanterns are generally supplied in a box which is fitted with screws to keep them in position. When placed upon this box, which in turn is placed upon a firm table, the lantern will be about the proper height from the floor. In order to obtain proper definition, the lantern should be placed exactly in the centre of the screen, so that the rays of light from the lens to both edges of the disc may be of equal length. Unless this is the case, perfect definition cannot be obtained; and the lines of the picture will be blurred and indistinct on one or other of the edges. It will most probably happen that when the disc of light from the lantern is first projected upon the screen, some portions will be lighter than others. This is because the lamp is too near or too far removed from the condensing lens; and the defect is easily remedied by altering its position in the lantern by means of the wire, J (Fig. 1). The lantern thus adjusted is now ready for use, and the next thing claiming attention is the preparation of the slides for exhibition.

The small pictures used in the lantern, and called slides, vary considerably in character and in price. Some of the cheaper ones are merely rubbish, and are calculated to disgust all persons having the slightest taste for art. Others are expensive; and some, although very good, are not suited for exhibition in such lanterns as are likely to be in ordinary household use. Many photographic slides, for instance, are too opaque in the deepest shades for effective exhibition by means of the oil lamp, but require the oxyhydrogen light. Care should therefore be exercised in their selection, and only the thin and transparent ones chosen. If this be explained to the optician, he will select suitable slides; but it must be always borne in mind, that photographs require, as a rule, much more brilliant illumination than painted subjects. The slides should be carefully dusted before placing in the lantern, as every speck of dust is magnified in the same proportion as the picture, and a spot which is almost imperceptible on the picture, will appear as a huge blot upon the screen. The subject of each picture should also be marked upon the frame which supports it, in characters which may be easily read in the dim light which prevails in the exhibition room. All being thus prepared, a trial slide may be inserted, remembering that in the lantern all the pictures are reversed, and must be placed in the groove upside down. If a landscape, the sky must be downwards; if a figure, the head. At first, the picture will probably be hazy and indistinct. This is because it is not "in focus"—that is, because it is too near or too far from the object-glass. This must be rectified by turning the rackwork, H (Fig. 1), forward or back, until proper definition is obtained, and the picture is sharp and distinct over the whole surface of the screen.

We should advise the tyro who has not previously worked a lantern, to have one or two private *séances* before appearing in public.

Hitherto we have confined our attention to plain slides, which produce a representation of scenes or objects without life or motion; but there are others, which by means of various mechanical arrangements, produce, though somewhat rudely, the appearances of animated life. The most common of these is the slipping slide, which is made of two plates, the one slipping over or before the other. By means of this arrangement,

some very comical transformations are produced. For instance, a man is carrying a pig's head on a dish—by drawing the slip, the man's head is transferred to the dish, and that of the pig to the man's shoulders. This is, of course, great fun, and is always intensely relished by the youngsters.

A second variety is termed the lever slide, which may be made to produce some very pretty effects, such as a horse drinking from a pool, or a fowl picking up food. But perhaps the most brilliant mechanical slide is that called the "chromatrope," which consists of a series of geometrical figures brilliantly painted upon two discs of glass, one or both of which are made to revolve by means of rackwork. The effect of a good chromatrope is superb, and the collection of slides cannot be considered as at all complete without one or two of these. Sometimes they have the word "Welcome," surrounded by a star; this makes a good beginning to the exhibition; and "Good-night," in a *still* more brilliant setting, will mostly send the most fastidious youngster off to bed in a happy frame of mind. Of a similar character are revolving slides, in which a wind or water mill is represented in motion. These also rarely fail to please; and many of such slides are not only pretty, but really artistic pictures, which can be looked upon with pleasure by young and old alike.

After this, it may be asked, "Can anything be better than a magic lantern?"—to which the reply must most certainly be, "Yes; two magic lanterns." For by these means can be produced the beautiful effects known as dissolving views. When using only one lantern, the change of slides must be effected either while the light is altogether shut off, or by leaving the bright white disc upon the screen, pending the insertion of a fresh picture. In either case, the effect is unpleasant; but, by using two lanterns, one picture can be softly dissolved into another with the most charming effect.

There can be no doubt that this is by far the best and most artistic mode of working the magic lantern; but, of course, it involves the cost of extra apparatus. Two lanterns are required, which should be placed side by side, and be exactly alike in every particular. When lighted and arranged, as we have described for the single lantern, they should be so placed as that the discs of light are exactly coincident. Usually, the two lanterns are fitted to the top of the box in which they are kept when not in use. The front of this box is supplied with a rackwork bar of brass, which is made to travel by means of a pinion and a small handle. Fig. 2 will give some idea of the arrangement. It will be observed that upon the horizontal bar, A A, are secured two perpendicular rods, B, B, which support plates of metal having very deeply toothed ends, C, C. When in use, one of these plates entirely covers the aperture of one lantern; but as the rackwork is removed by the handle, D, the light is gradually shut off from one lantern and allowed to escape from the other. The effect of dissolving is thus produced, one picture melting softly into the other.

In commencing an exhibition of this kind, one lantern should be covered with the screen, as shown in the figure, and the other with a piece of cloth or velvet. Two slides should then be inserted as before directed. The cloth may then be removed, and the first picture shown. The rackwork being then set in motion, the first view may be dissolved into the second; and while this is being shown, the first exhibited slide should be withdrawn, and replaced by a third, and so on through the series. In some cases slides are made in sets for use in this way; as, for instance, when a scene is intended to change from summer to winter. In this case, care must be taken to insure accurate "registration," that is, that the images shall be exactly on the same place upon the screen. Sometimes both lanterns are required at once, as in the introduction of a swan into a mill-pond. In such a case, the screen, C, must be temporarily turned back, and replaced after the picture has been exhibited a sufficient time.

There are many very beautiful effects to be produced when two lanterns are employed, which we need not here enter upon, as the purchasers of the slides will receive full information as to the best mode of working them from the optician who furnishes them.

We should advise the amateur to provide himself with two lanterns, if possible, at first; but, if this be too expensive, he should so arrange that a second may be procured at a future time, which shall be exactly similar to the one already in use.

We have not in this article mentioned the mode of lighting by means of the oxyhydrogen or oxycalcium lamps, because they will not be often required for such exhibitions as are given in the house; and as the result of much experience and practice, we can assure the reader that with ordinary care and attention he will find the foregoing instructions perfectly reliable, and amply sufficient to ensure a successful and pleasing evening's entertainment for the juveniles.

TEXTILE FABRICS IN DOMESTIC USE.—I.

HOW TO SELECT AND HOW TO USE THEM.

THE term "textile fabrics," if strictly interpreted, would perhaps only include such materials as are formed by weaving fibres of flax, silk, or cotton into linen, cloth, or silk. By a little straining of the term, however, many other fabrics might be included, as, for instance, felt, oilcloth, and cocoa-nut matting. In these articles we propose to use the more extended definition, so as to include the most important kinds of material commonly in household use, not confining ourselves to those merely which are used for wearing apparel, but noticing, also, those which are applied to various purposes, such as bedding, curtains, and carpets. It is not our purpose to explain in detail the various processes of manufacture, except in so far as may be required in order to understand the peculiar qualities of each material, and how these must be considered in their treatment, in order to obtain the utmost durability of which they are capable.

A moment's consideration will show that silk and linen require different treatment in use, and that a course which would be strictly proper for one fabric, would, if adopted for the other, result in its utter destruction. When it is considered what an important place textile fabrics occupy in the household, it will at once be seen that this is a matter of the utmost consequence, and one which deserves the most careful attention. The knowledge of the method of determining whether the material is of good or of inferior quality is also essential; and we propose, therefore, to offer some of the more simple rules for guidance when purchasing.

The materials of which the more common textile fabrics are manufactured may be roughly divided into two classes, namely, those derived from the animal and from the vegetable kingdoms. Of these, characteristic examples are—of the animal, silk and wool; and of the vegetable, cotton and flax. Silk stands pre-eminent for lustre, beauty, and fineness of texture, while woollen fabrics are justly celebrated for their warmth and durability. Next to these comes linen, which is finer and stronger than its humbler relative, cotton. Of these we propose to treat in the order mentioned, giving to silk that foremost position which it ought most justly to occupy.

As is well known, this beautiful material is the product of an exceedingly ill-favoured caterpillar, which, after several transformations, eventually becomes a greyish white moth. This, however, is after its real work of

utility is accomplished, the "cocoon" of silk being spun while the insect still retains its original form of a caterpillar. When the cocoon is completed, the material of which it is composed is wound off. In this state it is exceedingly thin, and several fibres are united in order to form one ordinary strand of the thickness of what is usually called sewing thread or silk. The fibre thus wound is the best part of the cocoon, and this is often mixed with the inferior portions, which are known as "floss." A large cocoon will yield as much as 600 yards of filament, and twelve pounds of cocoon will return about one pound of raw silk.

Before, however, the raw silk is fit for weaving, it must be subjected to certain processes in order to impart more firmness to its texture; and it is usually made into one of the three forms called respectively, "singles," "tram," or "organzine." Of these, the first is merely twisted raw silk, and, for whatever purposes the material is intended, it must undergo this process. "Tram" is formed by twisting loosely several threads, which, when combined, are mostly used for the "weft," or transverse threads forming the cloth. "Organzine" is produced by a process similar to that used for making rope, but of course in a much more delicate fashion, the combined strands being twisted in opposite directions. This material is principally used for the warp, or longitudinal threads of the fabric. Beside these varieties, there are others, such as that denominated "sewings," which are made up of several threads, and prepared with a particular view for the purposes to which they are afterwards to be applied.

It would be beyond the intended scope of these articles to describe the various processes of weaving adopted in producing the several fabrics which are made from silk—such, for instance, as plain or striped—while many, to which the most fanciful names are applied, as "Persian," "Gros de Naples," &c., differ only from ordinary plain silks either in the fineness of their texture and thickness, or the peculiar qualities of the material used in their manufacture. We will therefore proceed at once to offer some suggestions as to how those of good quality may be selected.

From what has already been stated, it will be seen that a good silk should possess three particular qualities: it should be soft, smooth, and lustrous. The better the silk the softer it will be, provided, of course, that it is closely woven, and not of a thin, flimsy nature. The readiest test of this quality is to sharply gather the material into folds across its width, and observe the angles produced. If the material be of good quality the folds will be soft in outline, but if these break into hard and sharp projecting points, the sample should be at once rejected. It is a very instructive experiment in this particular to take in one hand a piece of some soft material, such as good flannel, and gather it up as before described; the folds will be round and soft; if a piece of newspaper or brown paper be then gathered together in a similar manner, it will be observed that a number of very sharp projections will be formed, of which particular notice should be taken. In the case of silk, if these angles are formed in the sample they will also occur in the dress which is made of similar material; and whenever this takes place the delicate fibres of silk will be broken, and holes will be made. Any one who has used a silk umbrella will remember that the first sign of cracking into holes appears in the sharpest folds, and the reason is that given above. Beside this test of softness, that of perfect smoothness should be applied. The material should be perfectly equal in thickness, and present no irregularities of surface. This is best tested by passing the fabric between the thumb and forefinger, when any imperfection in this particular will be manifest. An experienced person will be able to determine the quality of silk by this test alone, but to do so requires considerable practice. One of the chief characteristics of silk is its brilliant gloss, and the lack of this feature in the material is a sure sign of its inferior quality. It is true that a kind of fictitious gloss is often imparted to a common quality of silk; but this is easily distinguished from the brilliant natural lustre which it ought to possess.

In old times a silk was often judged by its weight, a heavy material being a sign of its good quality. Thanks, however, to the progress which has been made in science, and applied to silk manufacture, this test cannot now be relied upon. This will be evident if we relate what an eminent silk manufacturer recently told us, namely, that a pound weight of raw silk is now frequently loaded with gum and dye, until it sometimes weighs as much as thirty or forty ounces. In this case, which may possibly be an extreme one, the purchaser is really buying gum and dye at the price of silk. But the mischief does not end here. The gum being stiff and inflexible, as the fabric is bent the strain on the fibre becomes more than it can bear, and the result is, that in breaking, holes occur, and the dress falls to pieces. This is why the fold test should be applied, as the more adulteration in the shape of gum the silk bears upon it, the more angular will be the outlines formed.

It should be remembered, however, that it is very much more difficult to load in this manner the lighter kinds of silk, and that in general the greatest quantity of adulteration occurs in black, or very dark-coloured materials. The raw silk varies but little, comparatively, in colour. Some is nearly white, while other qualities are mostly of a pale yellow, or yellowish grey.

Thus, it stands to reason that a heavier dye must of necessity be applied to render the deeper tones, and this affords opportunity for adulteration on an extensive scale.

Hitherto we have spoken of ordinary plain silk, but besides this there are many varieties of material, all of which are produced from the same fibre. Figured silks are produced by weaving threads of varied colours, so as to form the required patterns. The fabric known as satin is also derived from the same original source, but is so woven as to show the superb gloss to its utmost advantage. "Moire antique" is likewise a silk fabric, usually of a stouter character, and is "watered," that is, the irregular and somewhat more glossy lines are produced by a curious process of rolling under pressure. One of the defects peculiar to this material is, that the water-marks are frequently closer and smaller in outline at one end, or in parts of the piece. This defect is caused by a slight inequality of thickness, but, except in rare cases, it is of little moment, and scarcely observable, except to an expert. The rules given for selecting a good plain silk are equally applicable to satin, figured silks, and moire antique; if it be borne in mind that satin is naturally softer, and moire antique stiffer than the plain varieties of the same material.

It may be judged, from the foregoing remarks, that there is some difficulty in obtaining a really genuine silk, except the purchase be made at an establishment which is known to furnish a first-rate quality, and to charge a fair price for its goods. Cheap silks, in the ordinary acceptation of the term, there cannot be. It is true that a so-called silk may be produced at a ridiculously low price, but the purchaser will soon find to his cost that he has bought in the dearest possible market, and that, unless he is prepared to pay a high price for a good article, he had far better leave silk alone. Some of the older and genuine qualities would last for a generation, and these, though expensive, were cheap; while in modern times, when twelve yards of material can be procured for about thirty shillings, or even less, a dress becomes absolutely dear when its comparative worthlessness is taken into account. But the best of material will be spoiled if not properly treated when in

use, and all silken fabrics require special treatment. In the first place, they should not be folded, or pressed tightly down in a drawer. If this is done, even the best material will in time be injured and creased. Perhaps the safest of all plans of preservation is to hang the dresses in a well-closed wardrobe, taking care to remove those folds and creases which are at all sharp or angular. We need scarcely observe that silks cannot be washed without great risk of spoiling them altogether. They may be cleaned by various means, already described in the HOUSEHOLD GUIDE, but ordinary washing would be simply spoiling them. As a general rule, it will be well to entrust even the cleaning to an experienced dyer and cleaner, as such persons have greater facilities for properly performing the work; and in the case of delicate fabrics much depends upon this. Silk may, if faded in colour, be re-dyed into a darker shade; and although it always loses a certain amount of brilliance in the process, a material of the first quality will present a good appearance until it is absolutely worn out, while that of an inferior sort will become shabby, even after a few days' wear. In concluding this part of our subject, we would observe that in hanging a silk dress in a wardrobe, care should be taken that it is placed clear of the doors. If it is so placed that the doors in opening and shutting chafe the folds one against the other, that is equivalent to so much wear, and we have known a dress entirely spoiled in consequence of such treatment.

In our next article we shall give rules for the selection of velvet and other textile fabrics.

HOUSEHOLD DECORATIVE ART. - XLVI.

THE ART OF STUFFING AND PRESERVING BIRDS AND OTHER ANIMALS (*continued from p. 342*).

Skinning and Setting up Quadrupeds.—The skinning of quadrupeds has to be proceeded with in the same manner as that of birds; but with these it is highly important that the dimensions should be accurately measured with the callipers and noted down, before commencing, that the exact proportions may afterwards be preserved. Doing this is useful in the case of birds, but is indispensable in that of quadrupeds. The bones of the legs and tail are, as in skinning birds, to be cleaned and left in; but in skinning the neck, two or three of the upper vertebræ should, in these animals, be left attached to the skull, which must be skinned and cleaned as far down as the snout, the brains and eyes being, of course, extracted. When the skin is returned upon the skull, it should be fastened to it with strong paste, mixed with arsenical soap, and the whole skin should be well sponged with the preservative solution.

For setting up, a body-wire will be required passing from under the tail to the skull, and coming out at the top of the head, and having a large cork upon it against

the tail-bone. A single leg-wire will serve for the two fore-legs, and another for the two hind-legs, and it must be bent as shown in the diagram, to make a loop, through which the body-wire must be passed, and on this the leg-wires must be secured by twisting fine wire round them. The tail-wire will be supported by being thrust through the cork. The ends of the leg-wires must be left long enough to project from the feet and pass through and be clenched on the under side of the board on which the animal is placed. The feet and nose should be brushed over with a composition made as follows:—Corrosive sublimate, two drachms; spirit of salt, two drachms; spirits of camphor, eight ounces. If, as is frequently desirable in stuffing a beast of prey, it be wished to place some animal in its mouth, this should now be introduced; and the fur of the animal will have to be arranged, and the drying proceeded with as in birds.

Preservation of Reptiles.—Reptiles, such as snakes, frogs, lizards, &c., may be preserved by immersing them in glass jars or bottles filled with half spirits of wine and half water, or with the following solution:—Four ounces of bay-salt, two ounces of alum, half a drachm of corrosive sublimate, one quart of boiling water; strained, when cold, through blotting-paper, and well stoppered, or corked and cemented down.

They may also be stuffed and set up in somewhat the same manner as birds or quadrupeds.

Snakes should be skinned without making any other opening than through the mouth, a wire passed up them from the tail and coming out at the top of the head, and the skin then filled with fine dry sand, which must be well shaken in. They can then be set in position and dried, and if a lighter stuffing than sand is desired, the latter can be shaken out, and sawdust introduced in its place; the mouth must be stuffed with fine tow or cotton. Other reptiles may be preserved in essentially the same manner. The skins of these animals must, of course, be dressed on the inner side with one of the preservative compounds. A special composition for the skins of fish and reptiles is made as follows:—Powdered burnt alum, three ounces; sublimate of sulphur, two ounces; oxymuriate of mercury, half an ounce; powdered camphor, half an ounce; and powdered oak or elm bark, four ounces. Mix well. The preservation of these animals will be completed by brushing them over with a varnish composed of the following ingredients:—Gum mastic, two ounces; spirits of turpentine, six ounces. Mix them, and place in a sand-bath until dissolved. In making use of the above, give the reptile two coats thinly laid on, in preference to laying it on thickly.

Preservation of Fishes.—Small fishes may, like reptiles, be preserved by immersion in spirits of wine or in a solution, or any fishes may be skinned and stuffed in the following manner:—Supposing the fish, when taken, to have been treated as before directed. It should be laid on its side on a clean cloth, and an incision made along the lateral line, from near the vent to the head. The side of the head must also be opened in order to remove the brains, &c. The fish must be skinned, commencing at the head, the vertebræ being cut through at the neck and afterwards at the tail, and the fin-bones separated from the body. After the skin has been well wiped, it must be dressed with the preservative powder, which must also be applied to the skull, and the latter must then be stuffed with tow, and the eyes fixed in with putty. The fins must be spread out and secured till dry between pieces of cardboard. A wire must be passed from the tail to the head, and the skin filled with fine dry sand, sewn up, and dried. In skinning fishes, especial care should be taken not to stretch the skin, and they should be preserved as soon as possible after being caught.

Mounting.—The manner in which birds and animals should be mounted after they are stuffed, is a question on which few absolute directions can be given, since it must chiefly depend upon the taste and judgment of the operator. One definite precept may, however, be laid down, which is that both the attitudes of the animals, and the accessories with which they are surrounded, should invariably be kept as natural as possible. All strained and affected attitudes should be avoided, and in fitting the cases no such barbarisms as moss and grasses dyed of vivid and unnatural colours, or any deviation from the harmony and gentle gradations which are usual in nature, should be allowed. A sufficient variety of beautiful naturally-tinted mosses and grasses are to be met with in the woods and fields. Mosses to be dried for this purpose should be collected soon after Christmas, and

some of the prettiest varieties will be found growing upon the bark of the oak, the apple-tree, the birch, and the hawthorn; and upon the ground, in woods and hedge-rows. Of our native grasses, there is a large number of beautiful varieties, and these should be gathered in the summer, after they have blossomed, and shortly before they seed. Frequently natural twigs and branches, suited for use in mounting cases of birds, can be procured; oak, apple, and old hawthorn trees often yield valuable ones; sometimes, however, it is necessary that artificial stumps, trees, or branches should be formed, which may be done in the following manner:—Soak brown paper in water for twenty-four hours, boil it in a saucepan with a little water until it is reduced to a pulp; then knead it with a little plaster of Paris, and with this paste stumps or branches may be moulded to any shape; a framework having first been formed to sustain them, of pieces of wood fastened together, or of wire. When this has been moulded into shape and dried, it must be brushed over with a paste composed of the following materials:—Of gum arabic and whitening, each two ounces; fine flour, half an ounce; and ox-gall, a teaspoonful; these must be dissolved and mixed with a little water. When this is spread over the work, dried and powdered mosses from the bark of trees can be sprinkled on; and these, adhering, will give much the effect of natural bark. These artificial branches will have the advantage over natural ones of being capable of assuming any shape that may be desired.

Rocks may be imitated by moulding brown paper which has previously been soaked in water, coating it with paste, sifting sand over it with a sieve, and painting it with water-colours to any tint or tints required. In mounting fishes and aquatic birds, it is often desirable to imitate water, and this may be done either with looking-glass or with ordinary glass painted green on the under side, the edges being concealed with moss, grass, &c., fixed in position with the paste. The effect of frost or snow may be produced by dissolving whitening and size in a little warm water, and laying on the compound while warm; to this a sparkling appearance may be given by sprinkling over it a little powdered glass, or better, some of the "crystal" sold for the purpose at the naturalists' shops.

The positions which stuffed animals should be made to assume demand the exercise of great skill and judgment on the part of the taxidermist; and in the hands of an enthusiastic naturalist, this part of his labour may, indeed, be made to become one of the fine arts. The only way in which absolute perfection in posing animals is to be attained, is by closely observing the habits and characteristics of the different species during life; but it is not every person who has opportunities of studying nature for himself, and those who cannot do so will find the best substitute for it in correct and well-drawn prints. Nature is, however, always the best teacher, and should be consulted if possible.

There are certain conventional set attitudes common among bird-stuffers, which, although we cannot recommend them for observation by the practised taxidermist, may be useful to the beginner, since definite directions can be given for them. For effecting these, we extract the following rules from a standard work:—

"*For the Attitude of Seizing its Prey.*—The legs should be stretched out, the claws extended, the head and neck bent down, the wings very much raised, about three-quarters open and convex above, the tail forming a fan almost perpendicular, and the body inclined towards its prey.

"*Flying.*—The wings should be extended as much as possible; the tail should be horizontal and open; the neck bent forward and a little on one side; the claws shut, and the feet pressed against the breast. Suspend it thus from the ceiling.

"*Surprise.*—The perch should be made obliquely; the left foot extended, the right very near the body, and bent, the body thrown to the right, the wing of that side elevated and very much spread, the other less and lowered; the tail lowered, open, and roofed—that is, sloped on each side; the neck poised and inclined to the right, the head leaning down, the beak open, and the eyes fixed on the object of its fear. This description may be applied to all birds of prey and an infinity of others."

Proper Methods of Preserving Stuffed Animals from Injury.—The chief dangers to which stuffed animals are exposed are the attacks of insects, and more particularly moths; and it is essential, with a view to their proper preservation, that the places in which they are kept should always be dry. No specimens can be considered as really secure from moths unless they are enclosed in glass shades or cases. These should, if possible, be made perfectly air-tight, and the space within should be kept constantly charged with aromatic odours, by placing lumps of camphor in the bottom of the case, or else by steeping some of the moss in spirits of camphor before fixing it in position. Sometimes, however, it may be necessary to keep both birds and quadrupeds without cases. Birds are always, of the two, the most difficult to preserve without the protection of glass, and they will be best treated by frequently dusting them with a soft camel-hair brush or silk handkerchief, and sprinkling upon the feathers a little spirits of turpentine or solution of musk, made by dissolving two drachms of musk in a pint of spirits of wine. The fur of quadrupeds should be brushed every few weeks with "Persian insect powder," or a little musk; and in all places where stuffed animals or skins are kept, whether exposed or in the cabinet, the presence of a few lumps of camphor will always be found beneficial. Reptiles or fishes, being protected by the varnish we have recommended, may be preserved without further trouble, if they are only kept in a dry place.

COOKERY.—LXIX.

FRENCH DISHES (*continued from* *p.* 345).

Potage au Lait (*Potage with Milk*).—Make hot some milk in a pan, and beat up in it the yolks of some eggs, and pour the preparation over crusts of bread. Before serving sprinkle with powdered sugar.

Potage à la Citrouille (*Pumpkin Soup*).—Take the quarter of a middle-sized pumpkin, cut away the rind and the part that contains the seeds; then cut it up into pieces, put them into a stewpan with some water, and boil them until they become of the consistence of marmalade. A piece of butter the size of an egg and some salt are then to be added, and boil them again for a short time. Then boil about a pint and a half of milk, and having sweetened it to your fancy, pour it over the pumpkin. Now take a dish, and arrange on it some pieces of bread already cut up, moisten them with the pumpkin soup, and put a cover over it. The dish is then to be placed on some hot cinders for about a quarter of an hour, to allow the bread to swell, being careful that the liquid does not become so hot as to boil. When ready, pour over the soaked bread the rest of the soup while boiling.

Potage à la Condé (*Soup named after Condé*).—Red haricots are to be boiled in good stock broth until they become very soft; then pass them, with the broth, through the meshes of a coarse wire sieve, adding at the same time more of the stock broth, to thin it sufficiently. Before sending to table, this soup is to be poured over slices of bread fried, till they assume a light brown tint, in butter.

Potage à la Colbert (*Soup named after Colbert*).—Take any vegetables that may be in season, and cut them into

small pieces; at the same time, if thought proper, they may be shaped in squares, ovals, rounds, diamonds, or any other shapes. The cut vegetables are then to be boiled in water to which salt has been added. When sufficiently cooked, serve them up in a tureen of stock broth, and put in with them as many poached eggs as there are guests at table.

Potage au Blé de Turquie (*Soup made with the flour of Maize, or Indian Corn*).—Boil the flour for an hour in good stock broth, taking care while boiling to stir it frequently, to prevent its adhering to the sides of the stewpan and becoming burnt.

Potage à la Tortue (*Mock Turtle Soup*).—Boil until half cooked some of the lean meat from a calf's head, in salt and water. Afterwards put the meat into a stewpan on the fire, with a quart of stock broth. Add some parsley, carrots, celery, thyme, basil, bay-leaves, marjoram, small onions, mushrooms, cloves, pepper, mace, ginger, the lean part of a ham, and a knuckle of veal, all of which must be cut into small pieces. Boil down the contents until the broth becomes of the consistence of jelly, the pan being frequently stirred, and great care being taken that its contents do not burn, by which an unpleasant taste would be given to the soup. The stewpan is then to be nearly filled with water, and allowed to simmer gently until the calf's head is nearly done. It is now to be removed, pressed between two dishes, and allowed to become quite cold; then it is to be cut into squares about an inch long and wide. In the meantime, more water is added to the stewpan, and when skimmed may, if considered necessary, be clarified by the addition of white of egg beaten up in water, and again boiled. The soup should then be strained through a fine sieve, and poured over the portions of calf's head placed in a stewpan; a small portion of cayenne-pepper being at the same time added. The pan is then to be placed on the fire until the calf's head is sufficiently cooked. Occasionally, when expense is no object, half a pint of wine—Madeira being the best suited for the purpose—is added to the mock turtle before sending it to table.

Quenelles, or small Forcemeat Balls, are often added to the tureen of mock turtle when ready to serve up. They are prepared by cutting lean veal into thin pieces, and after pounding them in a mortar, passing the crushed meat through the meshes of a coarse wire sieve. Then it is again pounded with some hard-boiled eggs, and some pepper, salt, and nutmeg; then some panade and the yolks of raw eggs are added, and the whole well mixed together. The mass is then again passed through the wire sieve to mix it as perfectly as possible, and then rolled, by means of flour to prevent its sticking to the hands, into balls the size of marbles. These forcemeat balls are then put into boiling water, and boiled for five or six minutes, until they become sufficiently hard.

Potage à la Fécule de Pommes de Terre et aux Oignons (*Soup with Potato-starch and Onions*).—Fry some onions, cut into small squares, in butter, until they become brown. Then boil some milk, and when quite hot put the onions into it, and simmer them for half an hour. Afterwards beat up some potato-starch with cream, and mix it carefully with the onions and milk, taking care that the starch does not become lumpy; and then season with a small quantity of salt, and sweeten with sugar, to please the palate.

Garbure aux Laitues (*Lettuce Porridge*).—Soak some lettuces in hot water for half an hour; then separate the leaves, and put them into a stewpan, the bottom of which has been covered with slices of bacon and veal. More slices of bacon are then to be placed over them, with carrots, onions, and a few cloves. Some meat stock broth is then to be poured into the pan, and allowed to simmer for an hour and a half, when it will be ready for use.

Potage à la Raiette.—Fry in butter, in a stewpan, some carrots and turnips cut into small squares, and also some leeks sliced. Then add some stock broth, and simmer them for two hours. Two tablespoonfuls of the purée of sorrel are to be added about a quarter of an hour before sending to table.

Bœuf en Daube (*A method of Stewing Beef*).—Take some rump-steak, pound it well to make it soft, and lard it thoroughly. Put it in a stewpan, in equal parts of white wine and water, and add some leg of veal. Season it with spice, salt, garlic, thyme, and parsley. Boil them over a steady fire for four or five hours. When sufficiently done, remove the meat, and strain the broth through a sieve; then pour it into another pan, and boil it down until it becomes a jelly. If it is wished that the jelly should be clear, the whites of two eggs may be beaten up in a tablespoonful of stock broth, and added to it, and all well mixed. It must then be boiled for seven or eight minutes. Some lemon is then to be added, and the contents of the stewpan strained through a fine calico strainer, taking care not to squeeze the calico, or the dregs may be forced through the pores of the material. The filtered jelly is then put in a cold place to set. When it has become perfectly solid, it is to be cut up with a spoon into large pieces, which are to be arranged on the dish around the piece of meat. Sometimes the jelly is coloured before being strained, by the addition of a little powdered cochineal.

Printed by Cassell & Company, Limited, La Belle Sauvage, London, E.C.